CITY OF SAN DIEGO
BICYCLE MASTER PLAN UPDATE

SAN DIEGO, CALIFORNIA

THE CITY OF SAN DIEGO

alta PLANNING + DESIGN

DRAFT – March 2010

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The City of San Diego

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Executive Summary

The San Diego Bicycle Master Plan is an update to the City's previous 2002 plan, presenting a renewed vision for bicycle transportation, recreation and quality of life in San Diego. This vision is closely aligned with the City's 2008 San Diego General Plan mobility, sustainability, health, economic and social goals. The bicycle network, projects, policies and programs included in this document provide the City with a strong framework for improving bicycling through 2030 and beyond. The major components of the plan are described below.

Goals and Policies

The goals and objectives of the Bicycle Master Plan are derived from the 2008 San Diego General Plan and are strengthened with additional policies that provide specific guidance for achieving an ideal bicycling environment. The goals of the plan are:

- *A city where bicycling is a viable travel choice, particularly for trips of less than five miles*
- *A safe and comprehensive local and regional bikeway network*
- *Environmental quality, public health, recreation and mobility benefits through increased bicycling*

These goals are supported by twelve key policies that will help bicycling become a more viable transportation mode for short trips, to connect to transit and for recreation.

Existing Bicycling Conditions

Understanding existing bicycling conditions is critical to identifying appropriate and impactful recommendations and is achieved by reviewing existing land uses, the bicycle network and support facilities, multimodal connections, bicycle programs, constraints and opportunities.

Bicyclist stopped for a traffic light at the Congress Street/Taylor Street intersection

San Diego's existing bicycle network consists of approximately 312 miles of bike lanes, 114 miles of bike route, 9 miles of freeway shoulder open to bicycling, and 72 miles of off-street paved bike paths. San Diego's current network is supported by multimodal connectivity and bike parking, however there are ample opportunities for strengthening these crucial elements of the city's bicycle system. The City has recently revitalized its bicycle education and public awareness efforts with the "Lose the Roaditude" campaign that targets bicyclists, motorists, and pedestrians with the aim of promoting safe roadway behaviors. The campaign highlights hazardous actions such as failing to stop at stop signs and promotes safety measures such as wearing bright colors when bicycling or walking at night.

Relationship to Other Plans and Policies

This plan includes a summary of legislation and other planning or policy documents from the state of California, SANDAG, and the city of San Diego that are most pertinent to bicycling in San Diego. This includes a brief synopsis of important state policies such as California Government Code §65302 and California SB 375 as well as the bicycle-related elements of each of San Diego's currently adopted Community Plans.

Bicycle Needs Analysis

The Bicycle Master Plan includes an assessment of current bicycling demand and barriers in San Diego and estimates potential future demand and benefits that could be realized through implementation of this plan. Assessing needs and potential benefits is instrumental to planning a system that serves the needs of all user groups; and is useful when pursuing competitive funding and attempting to quantify future usage and benefits to justify future expenditures.

Bicycle Master Plan Update Pubic Workshop
Photo credit: Vincent Noto

The needs analysis relies on spatial modeling techniques, public input, bicycle collision data, and bicycle commuting statistics to gauge current demand and to establish a baseline against which progress can be measured. The spatial modeling highlights segments of the roadway network with the greatest propensity for bicycle activity compared to other locations in San Diego. Reviewing US Census data reveals that San Diego's bicycle commute mode share is 0.8%, which is slightly higher than the county estimate (0.6%) and above the national average (0.5%) but slightly lower than the state average (0.9%). Reviewing the number of total collisions and collisions involving bicyclists in San Diego from 2004 – 2008 shows that San Diego has relatively consistent collision rates over this five year period and that the proportion of fatal bicycle collisions in San Diego in 2007 was substantially higher at 4.8% compared to the statewide average of 2.7% and the nationwide average of 1.7%. Collectively, the needs analysis validates a robust approach to bicycle facility improvements and programs and provides guidance on where to direct improvements.

Bicycle Facility Recommendations

The plan's major infrastructure recommendations consist of bikeway facilities, intersection and other spot improvements, as well as bicycle support facilities. Recommended bicycle support facilities and programs include bike parking, routine maintenance, signage, and bicycle signal detection maintenance. The recommended bicycle network consists primarily of on-street facilities, including approximately 826 miles of proposed bike lane and bike route, 40 miles of bicycle boulevard, and 8 miles of cycle track. The plan also recommends 170 miles of paved multi-use paths. These totals include existing facilities and proposed unbuilt facilities.

The plan also identifies 40 top priority bicycle projects by applying a prioritization process to the recommended bicycle network presented. These 40 top priority projects comprise the first phase in implementing the recommended bicycle network.

The bikeway projects and facility improvements recommended in the Bicycle Master Plan Update should be complemented by programs designed to educate people about bicyclists' rights and responsibilities and safe bicycle operation; connect current and future bicyclists to existing resources; encourage residents to bicycle more frequently; and monitor the performance of the bicycle system and programs.

Bicycle Program Recommendations

The plan recommends several education, enforcement, encouragement, and monitoring and evaluation efforts the City should pursue, as well as programs the City currently provides and should continue. Major programmatic recommendations include developing a bike commute challenge program, instituting Sunday Parkways, fully funding a Bicycle Coordinator position, convening a Bicycle Advisory Committee and implementing a bicycle and pedestrian count and annual progress report program. The plan also recommends maintaining the City's current education programs and Safe Routes to School efforts.

Implementation and Funding

The plan supports the implementation of this plan's recommendations by providing planning level cost estimates of the entire proposed unbuilt network, more detailed cost estimates associated with the 40 high priority projects and an overview of funding sources that the City should pursue. The cost of completing the proposed bicycle network is estimated to be about $323 million for total system build out. The estimated cost for implementation of the 40 top priority bicycle projects is approximately $29 million.

Bicyclists riding on a bike path near Harbor Drive

I. Introduction

The San Diego Bicycle Master Plan (Plan) serves as a policy document to guide the development and maintenance of San Diego's bicycle network, including all roadways that bicyclists have the legal right to use, support facilities, and non-infrastructure programs over the next 20 years.

This updated Plan seeks to build upon the foundation established by the first San Diego Bicycle Master Plan adopted in 2002. The updated Plan provides direction for expanding the existing bikeway network, connecting gaps, addressing constrained areas, improving intersections, providing for greater local and regional connectivity, and encouraging more residents to bicycle more often. As stated in the 2008 City of San Diego's General Plan:

> *"The BMP contains detailed policies, action items, and network maps, and addresses issues such as bikeway planning, community involvement, facility design, bikeway classifications, multi-modal integration, safety and education, and support facilities... The BMP is intended to provide a citywide perspective that is enhanced with more detailed community plan level recommendations and refinements. The BMP also identifies specific bicycling programs and addresses network implementation, maintenance and funding strategies." (ME-36)*

Setting

The city of San Diego is the largest city in San Diego County and the metropolitan center of the San Diego region. The city's estimated population in 2008 was 1,279,329[1], making it the 9th largest city in the United States. The San Diego region's estimated 2008 population is 3,001,072[2], which makes it the 17th largest metropolitan area in the United States. San Diego encompasses 337 square miles and is the southwestern most state in the continental United States. The majority of San Diego's western boundary borders the Pacific Ocean and its southern boundary lies along the international border with Mexico. To the north and east, San Diego shares borders with 13 of the other 19 neighboring jurisdictions which comprise the San Diego region. San Diego is connected to the national interstate highway system through Interstates 5, 8 and 15 which, along with a number of other state highways, constitute the regional freeway network. There are two ports of entry with Tijuana, Mexico.

Class I bike path in Mission Beach

[1] United States Census Bureau (2008)
[2] Ibid.

San Diego is divided into 56 Community Planning Areas that stretch across coastal areas, inland hills, and mesas. These communities have developed over distinct time periods and have unique physical, community, and design characteristics that distinguish each of them. Community Planning Groups in each community provide the City with input on planning issues and each works with City staff to develop a Community Plan that is used as a tool for guiding development and public facilities within its respective boundary. The bicycle recommendations presented in this plan take into consideration existing facilities, future bicycle facilities desired by each community, and also the recommendations set forth in the Draft San Diego Regional Bicycle Plan. **Figure 1-1** displays San Diego's location within the region, its major freeways, and Community Planning Area boundaries.

Why Bicycling?

The bicycle is a low-cost and effective means of transportation that is quiet, non-polluting, extremely energy-efficient, versatile, healthy, and fun. Bicycles also offer low-cost mobility to the non-driving public. Bicycling as a means of transportation has been growing in popularity as many communities work to create more balanced transportation systems by giving bicyclists a greater share of the roadway network. In addition, recent national surveys find that more people are willing to cycle more frequently if better bicycle facilities are provided.

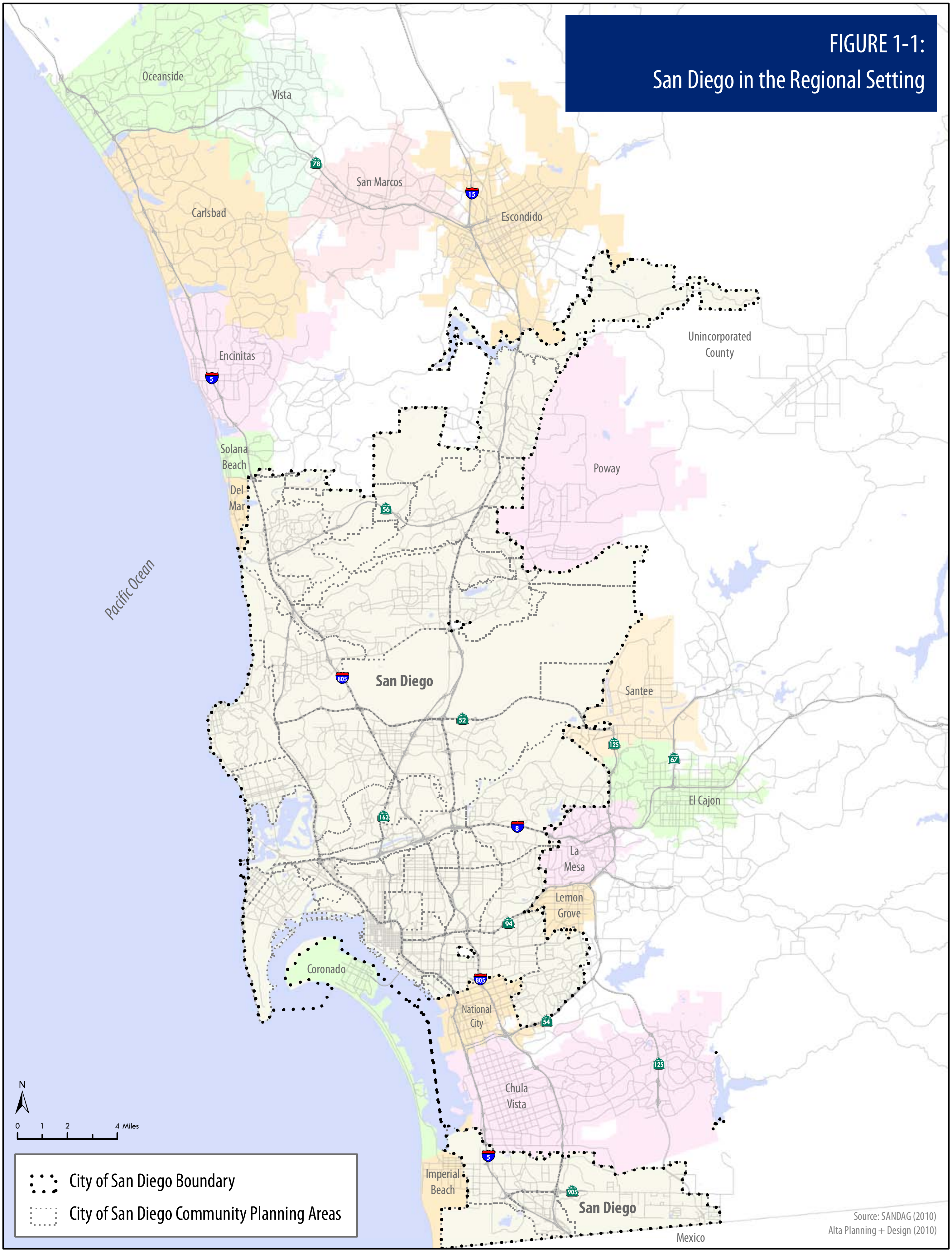
The city of San Diego is in a unique position to capitalize on its bicycle-friendly features, such as temperate climate, grid-based street network in the urban core, parks and trails, and scenic vistas to increase the number of residents and visitors who see San Diego via bicycle.

Purpose of the Bicycle Master Plan

This updated bicycle master plan provides a broad vision, strategies and actions for improvements to bicycling in San Diego. It is important to note that the city of San Diego is by no means starting from scratch in terms of accommodating and encouraging bicycling. This updated Bicycle Master Plan focuses on developing a feasible plan for an interconnected on-street and off-street bicycle network that serves all of San Diego's neighborhoods and provides connections to transit centers, shopping districts, parks and other local amenities. The bikeway facility recommendations are supplemented by recommended support, education, and encouragement programs, including improved maintenance of bikeway facilities, development of wayfinding signage, and support of motorist and bicyclist educational programming. Updating the Plan is important for the following reasons:

Maximize Funding Sources for Implementation. A key reason for updating the Plan is to satisfy requirements of Caltrans' California Bicycle Transportation Account (BTA) and other bicycle-related state and federal funding programs. In order to qualify for available funding, the State of California requires that applicants have a master plan adopted or updated within the past five years that includes a number of specific elements related to bicycle commuting, land uses, multi-modal connections, funding, and public input. The complete list of required BTA elements and their locations in this document is provided in **Appendix A** of this document.

FIGURE 1-1:
San Diego in the Regional Setting



Source: SANDAG (2010)
Alta Planning + Design (2010)

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Define High Priority Projects. A primary objective of the Plan is to identify the 40 highest priority bikeway projects based on a combination of demand and deficiencies in the bicycling environment. These top 40 priority projects will undergo preliminary feasibility analysis and costing as part of the Plan effort.

Provide Needed Facilities and Services. San Diego has over four hundred miles of existing bikeways. Many of these on-street facilities provide direct routes for experienced cyclists comfortable with riding on streets with relatively high traffic volumes and moderately high vehicular traffic speeds. However, the existing network has several gaps, does not provide easy north-south access, and has limited facilities that cater to less experienced cyclists. Attracting new cyclists requires developing an interconnected network that provides bicycle access within and between neighborhoods and that meets the needs of all levels of cyclists. This network should be enhanced with support facilities such as clear directional signage and secure bicycle parking at schools, employment centers and transit stops.

Improve Safety and Encourage Cycling. This plan provides tools to reduce the accident rate for bicyclists in San Diego through education and enforcement. Encouragement programs are also recommended to motivate San Diego residents to ride to work, school, for utilitarian trips, exercise and recreation.

Enhance the Quality of Life in San Diego. The development of bicycle facilities provides for complete streets, paths, trails, and activity centers accessible to everyone, and supports sustainable community development. Shifts from motorized travel modes to bicycling can reduce traffic congestion, vehicle exhaust emissions, noise, and energy consumption. It is a healthy and active form of travel. A good bicycling environment can also mean good economic sense for businesses in San Diego by providing enjoyable and safe bicycle access to restaurants and stores.

Plan Contents

The San Diego Bicycle Master Plan is organized as follows:

Chapter 2 documents the goals and policies of the Bicycle Master Plan that provide a vision for future bicycling in San Diego and serve as the foundation for the plan recommendations.

Chapter 3 provides a description of existing bicycle conditions in San Diego. The conditions presented include the existing bicycle network, support facilities and programs as well as existing land use patterns, activity centers and destinations, constraints and opportunities.

Chapter 4 provides an overview of the relevant local, regional, and state plans and policies. The Bicycle Master Plan has been developed to ensure consistency with these plans and policies, in accordance with BTA requirements.

Chapter 5 presents quantitative and qualitative assessments of bicycle demand in San Diego based on GIS modeling, public input, bicycle collision data, and commute statistics. An analysis of potential vehicular trip reduction and air quality benefits is also presented.

Chapter 6 presents the recommended bicycle network, prioritization of the bicycle network and identification of the 40 Top Priority Projects, as well as support facilities including bicycle parking, end-of-trip facilities, bicycle signal detection, signage and striping and multimodal connections.

Chapter 7 recommends a combination of education programs, enforcement efforts, encouragement programs, and monitoring and evaluation strategies intended to improve safety, encourage more people to bicycle, and monitor progress.

Chapter 8 provides planning level cost estimates of the proposed unbuilt network, more detailed cost estimates for the 40 Top Priority Projects, and a summary of funding sources the City should pursue.

II. Goals and Policies

The City's General Plan provides the foundation for all land use and development decisions in the city. It articulates the community's vision of an ideal built environment and contains public policies to direct future land uses toward this ideal state. The Strategic Framework Element sets forth details of the City of Villages strategy and establishes the structure of the General Plan. The Strategic Framework Element espouses guiding principles, including:

> *"An integrated regional transportation network of walkways, bikeways, transit, roadways, and freeways that efficiently link communities and villages to each other and to employment centers;" (SF-6)*

The San Diego General Plan Mobility Element elaborates upon the vision for mobility in San Diego. The overarching goal of the Mobility Element is to advance the achievement of a balanced, multi-modal transportation network that provides efficient travel with minimal impacts to environmental and neighborhood quality. The strategy for accomplishing this goal is spelled-out in the Mobility Element through goals and policies specific to various transportation modes and components of the transportation system, including walking, transit, the street and freeway system, transportation demand management, and bicycling. The most pertinent bicycle-related goals and policies established in the Mobility Element serve as the foundation for this Plan's goals and policies, and as such, are restated below verbatim. These Mobility Element policies are augmented with additional policies that will further enhance the state of bicycling in San Diego, most of which are carried over from the 2002 San Diego Bicycle Master Plan.

Goals portray the desired end-state of bicycling in San Diego, whereas policies describe how the goals will be achieved. The General Plan Action Plan (2009) delineates a strategy for implementing the General Plan. The Action Plan's bicycle-related implementation measures are reflected in Chapter 6 and Chapter 7 along with the other major Plan recommendations.

Goals

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation and mobility benefits through increased bicycling

Policies

1. Implement the Bicycle Master Plan, which identifies existing and future needs, and provides specific recommendations for facilities and programs over the next 20 years. (Mobility Element, Policy ME-F.1)
    a. Update the plan periodically as required by Caltrans, in a manner consistent with General Plan goals and policies. (Mobility Element, Policy ME-F.1.a)

b. Coordinate with other local jurisdictions, SANDAG, schools, and community organizations to review and comment on bicycle issues of mutual concern. (Mobility Element, Policy ME-F.1.b)

c. Create a bicycle advisory committee that will coordinate with various City agencies, schools, neighboring jurisdictions, SANDAG and community organizations, and will comment on bicycle issues.

d. Reference and refine the plan, as needed, in conjunction with community plan updates. (Mobility Element, Policy ME-F.1.c)

e. Improve connectivity of the multi-use trail network, for use by bicyclists and others as appropriate. (Mobility Element, Policy ME-F.1.d)

f. Fund and maintain a City bicycle coordinator position to ensure plan implementation.

g. Regularly monitor bicycle-related accident levels, and seek a significant reduction on a per capita basis over the next twenty years.

2. Identify and implement a network of bikeways that are feasible, fundable, and serve bicyclists' needs, especially for travel to employment centers, village centers, schools, commercial districts, transit stations, and institutions. (Mobility Element, Policy ME-F.2)

   a. Develop a bikeway network that is continuous, closes gaps in the existing system, improves safety, and serves important destinations. (Mobility Element, Policy ME-F.2.a)

   b. Implement bicycle facilities based on a priority program that considers existing deficiencies, safety, commuting needs, connectivity of routes, and community input. (Mobility Element, Policy ME-F.2.b)

   c. Recognize that bicyclists use all City roadways.

      i. Design future roadways to accommodate bicycle travel; and

      ii. Upgrade existing roadways to enhance bicycle travel, where feasible. (Mobility Element, Policy ME-F.2.c)

   d. Support bicycle rental opportunities at San Diego and Mission Bays, Balboa Park, transit stations, and other key recreation destinations.

3. Maintain and improve the quality, operation, and integrity of the bikeway network and roadways regularly used by bicyclists. (Mobility Element, Policy ME-F.3)

   a. Expand upon the existing destination-based signage system for the bikeway network.

   b. Provide alternate bicycle routes when removing established bikeways.

   c. Coordinate roadway improvements so that bicycle facilities are not reduced or eliminated in construction zones and are maintained or incorporated into future improvements in order to maintain the existing local and regional bicycle network or provide reasonable alternatives.

    i. Ensure that detours through or around construction zones are designed safely and conveniently, and are accompanied with adequate signage for cyclists and motorists.

    ii. Develop a procedure to ensure that all trench work performed within City streets be inspected after construction is completed to ensure that pavement quality is restored to acceptable conditions.

  d. Include bicycles as one of the transportation modes that receive routine review in environmental assessments.

4. Provide safe, convenient, and adequate short- and long-term bicycle parking facilities and other bicycle amenities for employment, retail, multifamily housing, schools and colleges, and transit facility uses. (Mobility Element, Policy ME-F.4)

  a. Continue to require bicycle parking in commercial and multiple unit residential zones. (Mobility Element, Policy ME-F.4.a)

  b. Provide bicycle facilities and amenities to help reduce the number of vehicle trips. (Mobility Element, Policy ME-F.4.b)

5. Increase the number of bicycle-transit trips by coordinating with transit agencies to provide safe routes to transit stops and stations, to provide secure bicycle parking facilities, and to accommodate bicycles on transit vehicles. (Mobility Element, Policy ME-F.5)

  a. Include bikeways as part of future light-rail or Bus Rapid Transit corridors with exclusive right-of-way.

  b. Coordinate with MTS to increase bicycle carrying capacity on buses by installing bicycle tracks that accommodate three bicycles on all new busses and whenever racks are replaced on existing buses.

  c. Coordinate with MTS to educate transit vehicle drivers about operating their vehicles in a manner that is sage and cooperative with bicyclists.

6. Develop and implement public education programs promoting bicycling and bicycle safety. (Mobility Element, Policy ME-F.6)

  a. Increase public awareness of the benefits of bicycling and the availability of resources and facilities. (Mobility Element, Policy ME-F.6.a)

    i. Expand the Bicycle Program website to include more information about educational material, maps, schedules of upcoming events and other bicycling related information.

    ii. Collaborate with local advocacy and community groups to disseminate bicycle-related information to the public.

b. Increase government and public recognition of bicyclists' right to use public roadways. (Mobility Element, Policy ME-F.6.b)

c. Engage in a public education campaign to increase drivers' awareness of pedestrians and bicyclists, and to encourage more courteous driving. (Mobility Element, Policy ME-A.3)

   i. Seek funds for public awareness campaign.

   ii. Develop Public Service Announcements (PSA's) for distribution through print, audio, and video media.

   iii. Educate professional drivers on bicyclist's rights and safe vehicle behavior around bicyclists.

d. Promote "Walking School Bus" efforts where parents or other responsible adults share the responsibility of escorting children to and from school by foot or bicycle. (Mobility Element, Policy ME-A.2.b).

7. Increase government enforcement of bicyclists' equal right to use public roadways.

   a. Periodically provide bicycle education to City staff involved in decisions regarding bicycle facilities, to include traffic engineers, planners, field engineers, field inspectors, street maintenance personnel and parks and recreation staff.

   b. Periodically provide bicycle education for law enforcement personnel and increase enforcement of traffic violations by motorists and bicyclists.

   c. Implement a program that offers bicycle safety training as an alternative to regular traffic school for motorists and bicyclists cited for traffic violations.

   d. Reinstate the bicycle registration program to deter bicycle theft.

8. Design an interconnected street network within and between communities, which includes pedestrian and bicycle access, while minimizing landform and community character impacts. (Mobility Element, Policy ME-C.3)

   a. Identify locations where the connectivity of the street network could be improved through the community plan update and amendment process, the Regional Transportation Plan update process, and through discretionary project review (see also Urban Design Element, Policy UD-B.5). (Mobility Element, Policy ME-C.3.a)

   b. Ensure that bikeway design includes the latest standards including *AASHTO Guide for the Development of Bicycle Facilities*, the *Manual on Uniform Control Devices*, and *Caltrans Highway Design Manual, Chapter 1000*. Certain areas may require experimental or other proven non-standard treatments and should be considered.

   c. Use local and collector streets to form a network of connections to disperse traffic and give people a choice of routes to neighborhood destinations such as schools, parks, and village centers. This network should also be designed to control traffic volumes and speeds through residential neighborhoods. (Mobility Element, Policy ME-C.3.b)

i. In newly developing areas or in large-scale redevelopment/infill projects, strive for blocks along local and collector streets to have a maximum perimeter of 1,800 feet. (Mobility Element, Policy ME-C.3.b)

ii. When designing modifications/improvements to an existing street system, enhance street or pedestrian connections where possible. (Mobility Element, Policy ME-C.3.b)

iii. Ensure that traffic calming efforts are carried out in coordination with the Bicycle Master Plan and will not preclude bicycle access or negatively affect the ability of bicyclists to proceed through an area targeted by traffic calming.

d. Provide direct and multiple street and sidewalk connections within development projects, to neighboring projects, and to the community at large. (Mobility Element, Policy ME-C.3.c)

e. Where possible, design or redesign the street network, so that wide arterial streets do not form barriers to pedestrian traffic and community cohesiveness. (Mobility Element, Policy ME-C.3.d)

9. Improve operations and maintenance on City streets and sidewalks. (Mobility Element, Policy ME-C.4)

a. Regularly optimize traffic signal timing and coordination to improve circulation. Implement new signal and intersection technologies that improve pedestrian, bicycle, and vehicular safety while improving overall circulation. (Mobility Element, Policy ME-C.4.a)

b. Adequately maintain the transportation system through regular preventative maintenance and repair, and life cycle replacement. (Mobility Element, Policy ME-C.4.b)

i. Undertake routine maintenance of bikeway facilities, such as sweeping streets, bicycle lanes and paths. This will include paint and striping, signage, pavement surface maintenance, tree trimming, and other facets of maintaining the operational integrity of the bikeway network.

ii. Establish an online program to encourage and empower citizens to report maintenance issues that impact bicyclist safety, track maintenance requests, and add them to scheduled maintenance activities.

c. Encourage community participation in planning, assessing, and prioritizing the life cycle management of the circulation system. (Mobility Element, Policy ME-C.4.c)

d. When new streets and sidewalks are built and as existing streets and sidewalks are modified - design, construct, operate, and maintain them to accommodate and balance service to all users/modes (including walking, bicycling, transit, high occupancy vehicles (HOVs), autos, trucks, automated waste and recycling collection vehicles, and emergency vehicles). (Mobility Element, Policy ME-C.4.d).

10. Require new development to have site designs and on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, and provision of amenities that are supportive and conducive to implementing TDM strategies such as car sharing vehicles and parking spaces, bike lockers, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate. (Mobility Element, Policy ME-E.6)

11. Implement innovative and up-to-date parking regulations that address the vehicular and bicycle parking needs generated by development. (Mobility Element, Policy ME-G.2)

    a. Adjust parking rates for development projects to take into consideration access to existing and funded transit with a base mid-day service frequency of ten to fifteen minutes, affordable housing parking needs, shared parking opportunities for mixed-use development, provision of on-site car sharing vehicles and parking spaces and implementation of TDM plans. (Mobility Element, Policy ME-G.2.a)

    b. Strive to reduce the amount of land devoted to parking through measures such as parking structures, shared parking, mixed-use developments, and managed public parking (see also ME-G.3), while still providing appropriate levels of parking. (Mobility Element, Policy ME-G.2.b)

12. Work with SANDAG to increase the share of regional funding (over the 2030 RTP levels) allocated to pedestrian, bicycle, and transportation systems management projects. (Mobility Element, Policy ME-K.3).

III. Existing Conditions

This chapter describes existing bicycling conditions within the city of San Diego. Information presented in this chapter was obtained via field visits, existing planning documents and data, mapping analyses, and conversations with City and other agency staff.

Land Uses

Figure 3-1 displays San Diego's existing land uses. San Diego has a large mix of land use types, with the greatest proportion (28 percent) of city land acreage being parks, open space, and recreation areas. Residential uses comprise the second largest use of land (24 percent) and range from low-density suburban to relatively dense multifamily and mixed use development. Older urban neighborhoods, such as City Heights, Greater North Park, and Uptown, include medium and high density residential, intermixed with commercial land uses. More recently developed areas of the city, such as Rancho Bernardo, Mira Mesa, Carmel Valley, and Tierrasanta, include a mix of high, medium, and low intensity residential and commercial land uses although uses tend to be more segregated in these newer communities. San Diego also has an increasingly vibrant urban downtown core, which in recent years has attracted high-density housing development.

Several large districts of industrial/office/commercial land uses are located in the city, including the Kearny Mesa and University City areas. San Diego is home to many military facilities, including Fort Rosecrans on Point Loma and Miramar Marine Corps Air Station. Three airports currently exist, including San Diego International Airport/Lindbergh Field near downtown, Montgomery Field in Kearny Mesa, and Brown Field in Otay Mesa. Open space reserves currently exist in the form of regional parks and preserves, including Los Penasquitos Canyon Preserve, Mission Trails Regional Park, and Torrey Pines State Reserve.

The city of San Diego General Plan set forth a renewed approach to development with the "City of Villages" strategy. The "City of Villages" strategy emphasizes infill development and redevelopment and envisions focusing growth into mixed-use activity centers that contain transit-oriented and pedestrian-friendly features, including accessible, attractive streets and public spaces. Each "village," defined as "the mixed-use heart of a community where residential, commercial, employment, and civic uses are present and integrated," is intended to embody the unique characteristics of that community (LU-6). The "City of Villages" strategy also calls for high capacity transit corridors to connect all "villages,' thereby providing for non-single-occupant vehicle travel across the city. This strategy is introduced in the General Plan Strategic Framework and is central to the Mobility Element theme of a balanced multi-modal and minimally intrusive transportation system. Currently, five urban "village" pilot projects are underway in select opportunity areas within the older urbanized parts of the city. **Figure 3-2** shows San Diego's planned land uses.

Bikeways

"Chapter 1000 Bikeway Planning and Design" of the *California Highway Design Manual* identifies three classes of bikeways. **Table 3.1** describes these bikeway classes.

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FIGURE 3-1: Existing Land Uses in San Diego (2008)

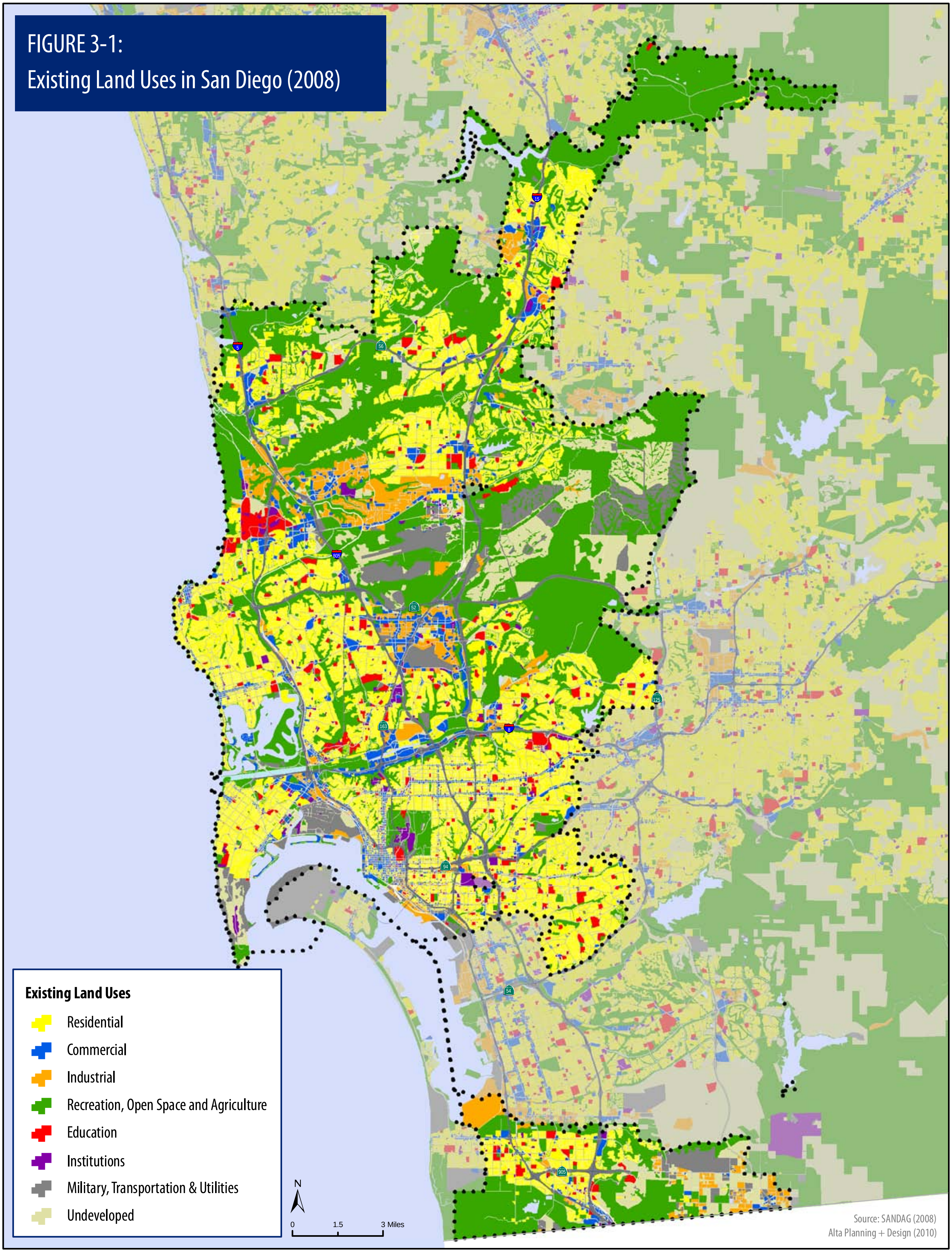

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FIGURE 3-2:
San Diego Planned Land Uses

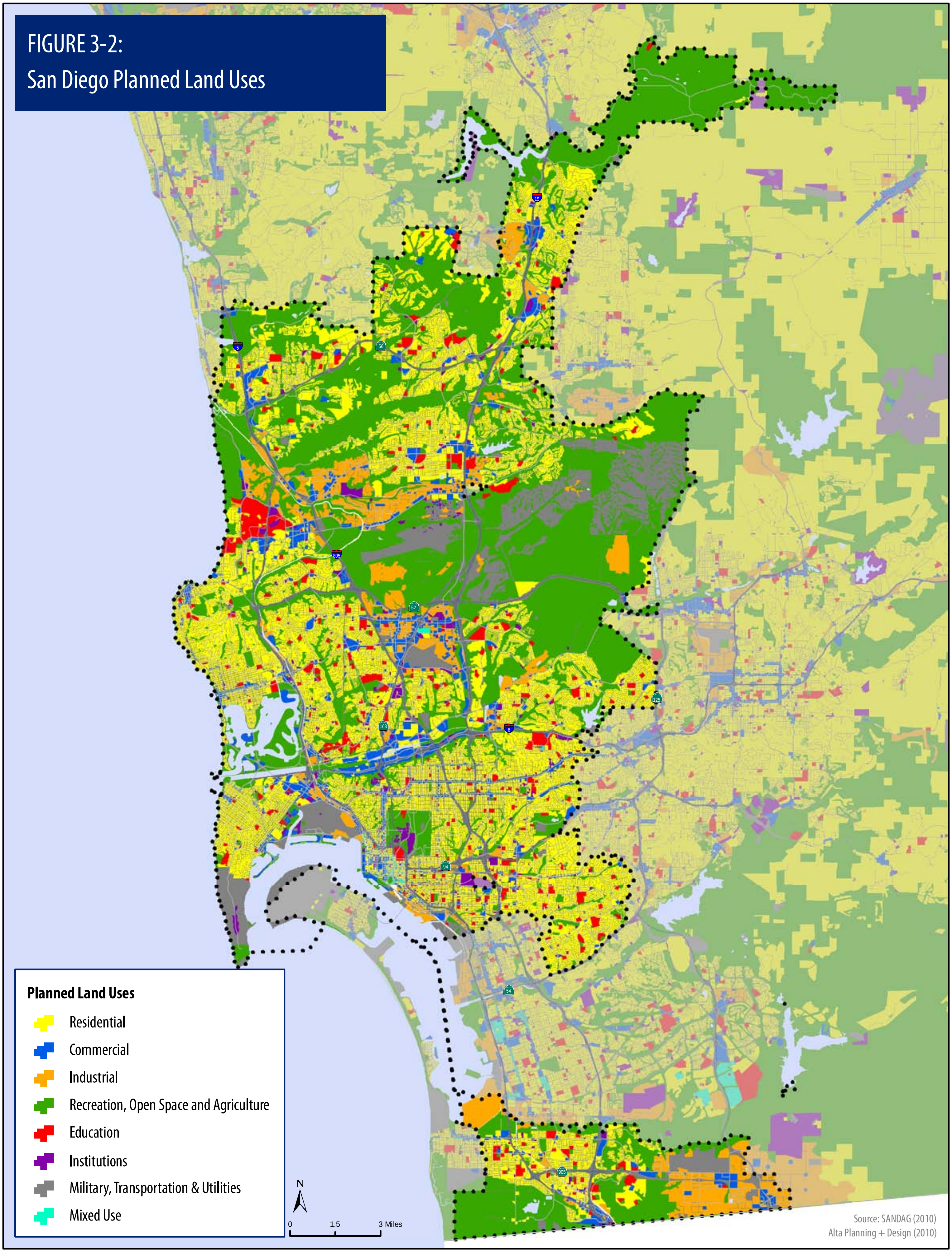

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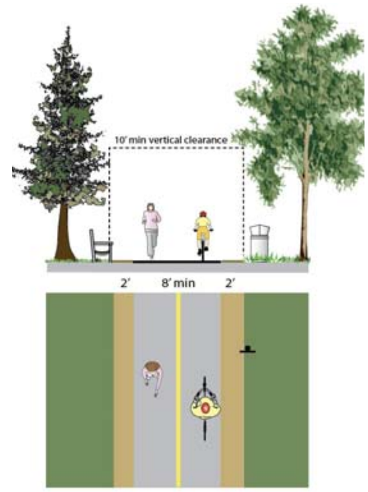
Table 3.1: California Bikeway Classification System

<u>Class I – Bike Path</u> Bike paths, also termed shared-use or multi-use paths, are paved right of way for exclusive use by bicycles, pedestrians and other non-motorized travel. They are physically separated from vehicular traffic and can be constructed in roadway right-of-way or independent right-of-way. Bike paths provide critical connections in the city where roadways are absent or are not conducive to bicycle travel.	
<u>Class II - Bike Lanes</u> Bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Bike lanes are one-way facilities on either side of a roadway. Bike lanes can be enhanced with treatments that improve safety and connectivity by addressing site-specific issues, such as additional warning or wayfinding signage.	
<u>Class III - Bike Routes</u> Bike routes provide shared use with motor vehicle traffic within the same travel lane. Designated by signs, bike routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Bike routes can be enhanced with treatments that improve safety and connectivity by addressing site-specific issues, such as "shared lane markings."	

Source: Alta Planning + Design, February 2010

The city of San Diego has a developed network of bike paths, lanes and routes. As of 2009, the city bicycle network contains approximately 511 miles of facility. **Table 3.2** summarizes existing bicycle facility by classification in the city of San Diego.

Table 3.2: Mileage of Existing San Diego Bicycle Facilities by Classification

Facility Classification	Mileage
Class I	72.3
Class II	309.4
Class III	112.9
Freeway Shoulder	16.1
All Classifications	510.7

Source: Alta Planning + Design, February 2010

Figures 3-3A and **3-3B** show the existing network of bikeways within the city. Many bike paths are located in Mission Valley, Mission Bay Park, and along the beachfronts in Pacific Beach and Mission Beach. Other bike paths of significant length can be found in Carmel Valley, Rancho Penasquitos, Mira Mesa, Rose Canyon, near the San Diego International Airport, and in the Mission Trails Park. Many Class I bikeways provide critical links between communities that would otherwise be inaccessible to bicyclists, such as the Rose Canyon and Murphy Canyon paths, which provide for convenient bicycle travel in areas with no other alternative route adjacent to busy freeways.

Most of the bike lane facilities are located in areas of the city developed within the last 30 years and include Rancho Bernardo, Rancho Penasquitos, Sabre Springs, Mira Mesa, University City, Carmel Valley, and Tierrasanta. Some important north-south Class II bikeways of significant length include Torrey Pines Road, Genesee Avenue, Linda Vista Road, Kearny Villa Road, Black Mountain Road, and Harbor Drive. Some significant east-west Class II bikeways include Aero Drive, Friars Road, Mission Gorge Road, and Carmel Mountain Road.

Bike routes are located along major arterials as well as along quiet neighborhood streets. Arterial Class III routes are located along such roadways as Miramar Road, Rancho Penasquitos Boulevard, Pacific Highway, 4th Street, 5th Street, 6th Street, Camino Ruiz, Saturn Boulevard and Del Sol Boulevard. Neighborhood bike routes are located along roadways such as Orange Avenue in City Heights, Gold Coast Drive in Mira Mesa, Fort Stockton Drive in Mission Hills, Hornblend Avenue in Pacific Beach, L Street near Golden Hill, and Iris Avenue in Nestor-Otay Mesa.

There are five sections of the freeway system within the city where bicyclists are allowed to travel. These freeway bikeway links are in areas where there is no viable alternative for bicycle travel.

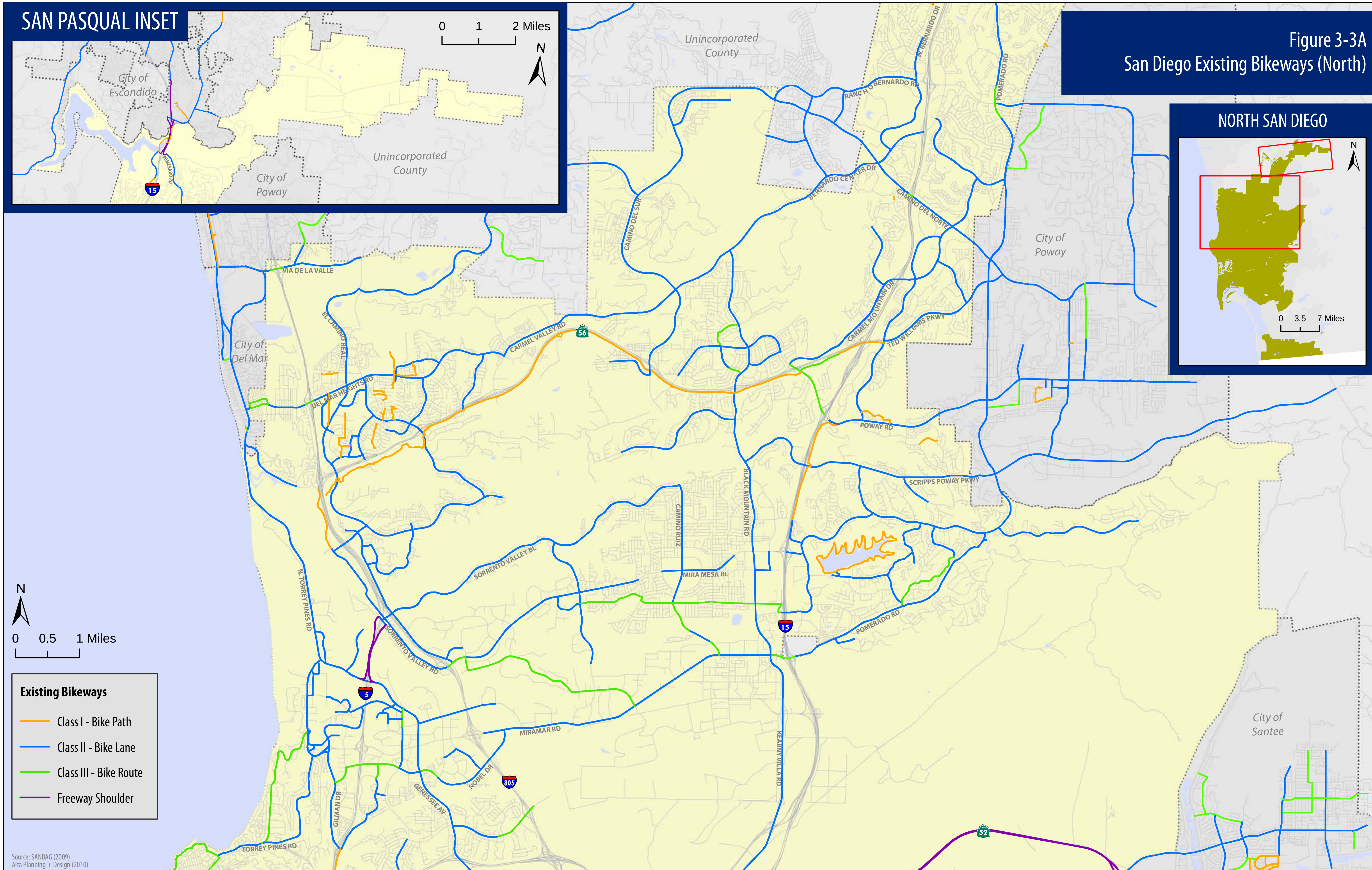


Figure 3-3A
San Diego Existing Bikeways (North)
SAN PASQUAL INSET
0 1 2 Miles
N
City of Escondido
Unincorporated County
City of Poway
POMERADO RD
15
NORTH SAN DIEGO
0 3.5 7 Miles
Unincorporated County
City of Poway
City of Del Mar
City of Santee
VIA DE LA VALLE
EL CAMINO REAL
DEL MAR HEIGHTS RD
CARMEL VALLEY RD
56
CAMINO DEL SUR
W. BERNARDO DR
RANCHO BERNARDO RD
POMERADO RD
BERNARDO CENTER DR
CAMINO DEL NORTE
CARMEL MOUNTAIN DR
TED WILLIAMS PKWY
POWAY RD
SCRIPPS POWAY PKWY
BLACK MOUNTAIN RD
CAMINO RUIZ
MIRA MESA BL
SORRENTO VALLEY BL
N. TORREY PINES RD
SORRENTO VALLEY RD
5
15
POMERADO RD
MIRAMAR RD
NOBEL DR
805
GENESSEE AV
GILMAN DR
KEARNY VILLA RD
TORREY PINES RD
52
N
0 0.5 1 Miles
Existing Bikeways
Class I - Bike Path
Class II - Bike Lane
Class III - Bike Route
Freeway Shoulder
Source: SANDAG (2009)
Alta Planning + Design (2010)

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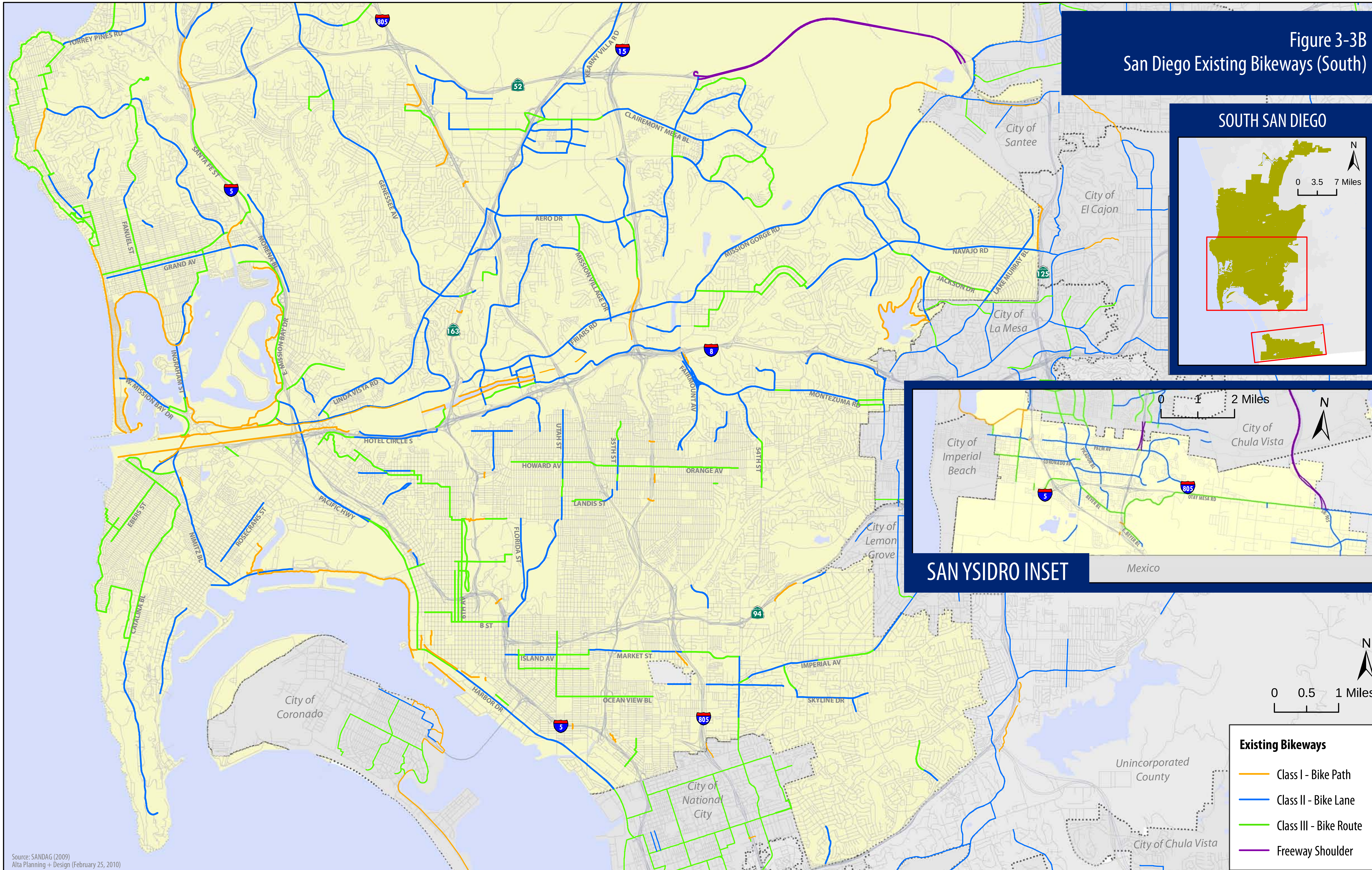
Figure 3-3B
San Diego Existing Bikeways (South)
SOUTH SAN DIEGO
N
0 3.5 7 Miles
SAN YSIDRO INSET
0 1 2 Miles
N
City of Imperial Beach
City of Chula Vista
Mexico
PALM AV
CORONADO AV
PICADOR BL
BEYER BL
E. BEYER BL
OTAY MESA RD
TORREY PINES RD
SANTA FE ST
FANUEL ST
GRAND AV
MORENA BL
INGRAHAM ST
E. MISSION BAY DR
W. MISSION BAY DR
GENESEE AV
KEARNY VILLA RD
CLAIREMONT MESA BL
AERO DR
MISSION VILLAGE DR
FRIARS RD
MISSION GORGE RD
NAVAJO RD
JACKSON DR
LAKE MURRAY BL
LINDA VISTA RD
HOTEL CIRCLE S
FAIRMOUNT AV
MONTEZUMA RD
UTAH ST
35TH ST
54TH ST
HOWARD AV
ORANGE AV
LANDIS ST
FLORIDA ST
PACIFIC HWY
ROSECRANS ST
NIMITZ BL
EBERS ST
CATALINA BL
6TH AV
B ST
ISLAND AV
MARKET ST
IMPERIAL AV
OCEAN VIEW BL
SKYLINE DR
HARBOR DR
City of Santee
City of El Cajon
City of La Mesa
City of Lemon Grove
City of Coronado
City of National City
Unincorporated County
City of Chula Vista
N
0 0.5 1 Miles
Existing Bikeways
Class I - Bike Path
Class II - Bike Lane
Class III - Bike Route
Freeway Shoulder
Source: SANDAG (2009)
Alta Planning + Design (February 25, 2010)

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The following segments of the freeway system allow travel by bicyclists within San Diego:

- I-5 between Sorrento Valley Road and Genesee Avenue
- I-15 between Via Rancho Parkway in Escondido and West Bernardo Drive/Pomerado Road
- SR-52 between Santo Road and Mast Boulevard in Santee
- I-805 between Palm Avenue and Main Street in Chula Vista
- SR-125 between Birch Road in Chula Vista and Otay Mesa Road

Bicyclists are permitted to ride on freeway shoulders in these areas. In some cases, the shoulders have signage and destination signs, while in others there is no signage informing bicyclists of the availability of the freeway route.

There are several bikeway projects that are currently in planning or design phases, including:

- Class I along the San Diego River from Qualcomm Way to Qualcomm Stadium
- Class I along the San Diego River from Qualcomm Stadium to Zion Avenue
- Class I along the San Diego River from Zion Avenue to Princess View Drive
- Class I from Jamacha Road and Meadowbrook Avenue to Woodman Avenue and Imperial Avenue
- Coastal Rail Trail from Downtown San Diego to Del Mar
- Class I connection between Tierrasanta Boulevard and Princess View Drive
- Class I along the eastern and western termini of the SR-56 Freeway

Since the adoption of the City's 2002 Bicycle Master Plan, several major bikeway projects have been completed, including:

- Ocean Beach-Mission Valley Class I extension to Hotel Circle Place
- Class I Lake Hodges crossing
- A segment of Class I along the SR-56 Freeway
- Class I Bayshore Bikeway connecting Otay Mesa-Nestor to Imperial Beach

Bicycle Parking and End-of-Trip Facilities

Bicycle parking accommodation is an important component in encouraging widespread bicycle use for utilitarian trips and for commuting. Various forms of bike parking are provided throughout San Diego to support longer and shorter trips, as described in the following sections.

Bike Racks

Bike racks are best used to accommodate visitors, customers, messengers, and others expected to depart within two hours. Bicycle racks provide support for the bicycle but do not have locking mechanisms. Racks are relatively low-cost devices that typically hold between two and eight bicycles, allow bicyclists to securely lock their frames and wheels, are secured to the ground, and are located in highly visible areas. They are usually located at schools, commercial locations, and activity centers such as parks, libraries, retail locations, and civic centers.

The City's standard bike rack is a blue inverted-U rack, which can be found in commercial areas and activity centers throughout the city. The City does not have a current inventory of existing bicycle racks but is in the process of collecting this data. Bicycle racks are often found at the following locations:

- Municipal and state parks
- Municipal and state beaches
- Colleges and universities
- Museums and facilities at Balboa Park
- Municipal libraries
- Shopping centers
- Regional shopping malls
- Government offices and buildings
- Retail and tourist locations in the downtown business and shopping district
- Qualcomm Stadium

Bike Racks along University Avenue in North Park

The City installs new bike racks by public request with grant funding from SANDAG. When bike rack requests are received, the City conducts a site analysis of the requested location, and, if eligible, places the location on an "unfunded requests list." When funds are available, racks are installed in the order in which the request was received.

SANDAG Bike Lockers

Bike Lockers

Bike lockers are used to accommodate long-term parking needs for those expecting to park their bikes for more than two hours, such as employees, students, residents, and transit commuters. This parking should be provided in a secure, weather-protected manner and location.

Lockers can be controlled with traditional key systems or through subscription systems. Subscription locker programs, like e-lockers, allow even greater flexibility with locker use. Instead of restricting access for each patron to a single locker, subscribers can gain access to all lockers within a system, controlled by magnetic access cards. These programs typically have fewer administrative costs because they simplify or eliminate key management and locker assignment. SANDAG's Compass Card enables access to bike lockers.

SANDAG provides bike locker facilities throughout the city and county. As of 2009, there were 25 bicycle locker locations throughout the city, primarily at San Diego Trolley Stations. These facilities contain 126 lockers and space for the storage of 251 bicycles. **Figure 3-4** shows the location of bike lockers and activity centers where bike racks are typically found.

To continue to expand bike parking, the City of San Diego has a bicycle parking ordinance that requires bike parking to accompany various forms of new development in the city. Chapter 6 of this Plan also outlines a bike parking program to provide additional short-term and long-term parking facilities in new and existing commercial, retail, and employment areas.

Innovative High-Volume Bike Parking

Many cities across the United States provide high-volume bicycle parking facilities to enable bicycling to locations with exceptionally high bicycle demand. Innovative structures such as bike oases, on-street bike corrals, and bike stations are currently lacking in San Diego. In Chapter 6 recommendations for innovative high-volume bike parking options are outlined. The Draft San Diego Regional Bicycle Plan also provides guidelines for innovative, high-volume parking facilities.

Currently the San Diego County Bicycle Coalition (SDCBC) works with organizations to operate valet bike parking pavilions during major events such as Padres' games. Valet parking pavilions accommodate a high volume of bicycles and also serve as a bicycle encouragement program. Valet bike parking systems generally work similar to a coat check during an event. The bicyclist gives their bicycle to the attendant, who tags the bicycle with a number and gives the bicyclist a claim stub. When the bicyclist returns to get their bicycle, they present the claim stub and the attendant retrieves their bicycle for them. Locks are not needed. The valet is open for a period before and after the event.

End-of-Trip Amenities

In addition to parking accommodations, many local employers and colleges and universities provide shower and clothing locker facilities that may be used by bicyclists at the end of their trips to work or school. These amenities contribute to the viability of bicycling as a commute option for many people. There are no City-owned facilities that offer such amenities however the City has adopted an ordinance requiring showers and clothing lockers to be provided within developments of a certain size. **Figure 3-5** shows major employment and educational institutions where end-of-trip amenities are most likely to be found.

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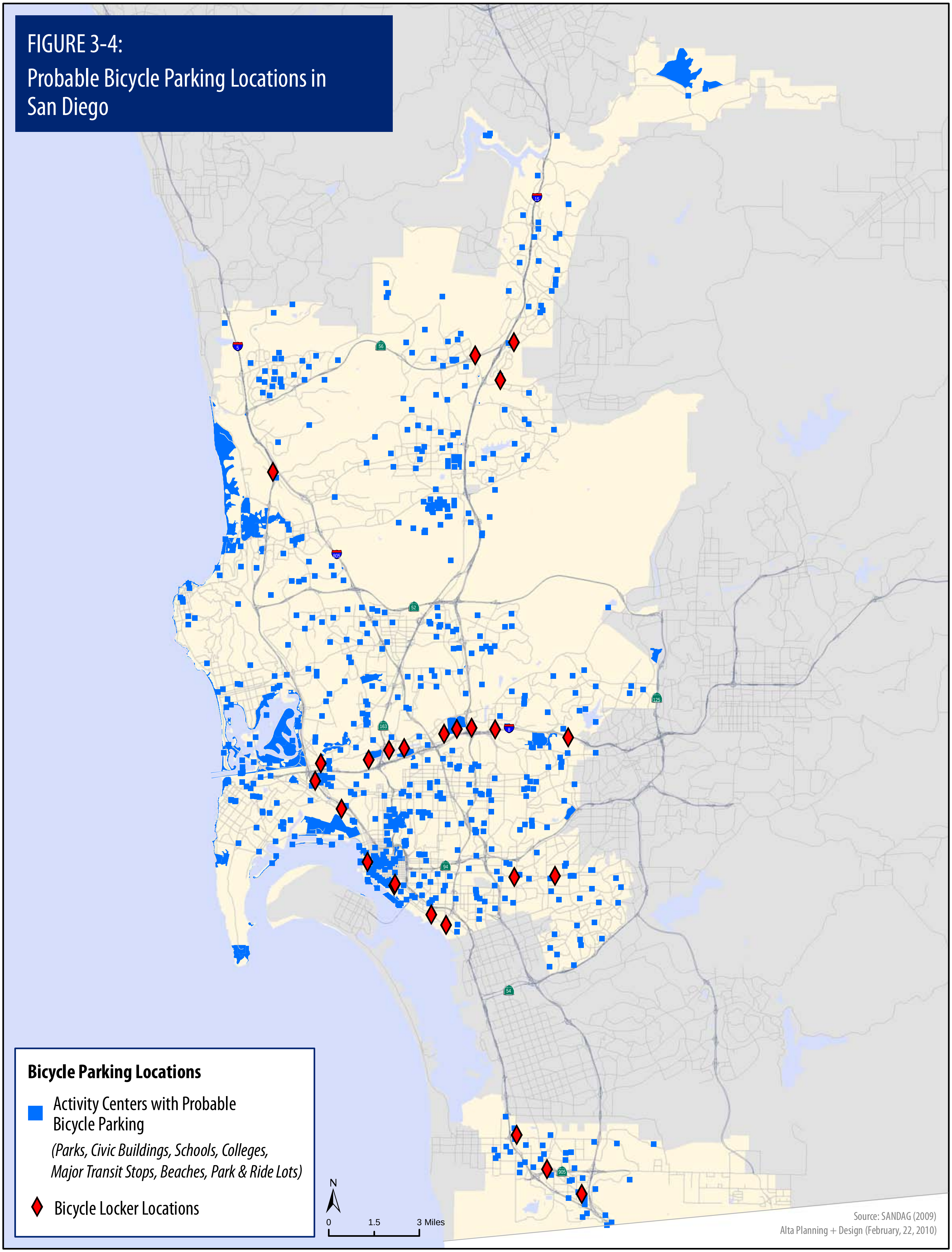
FIGURE 3-4:
Probable Bicycle Parking Locations in San Diego



Source: SANDAG (2009)
Alta Planning + Design (February, 22, 2010)

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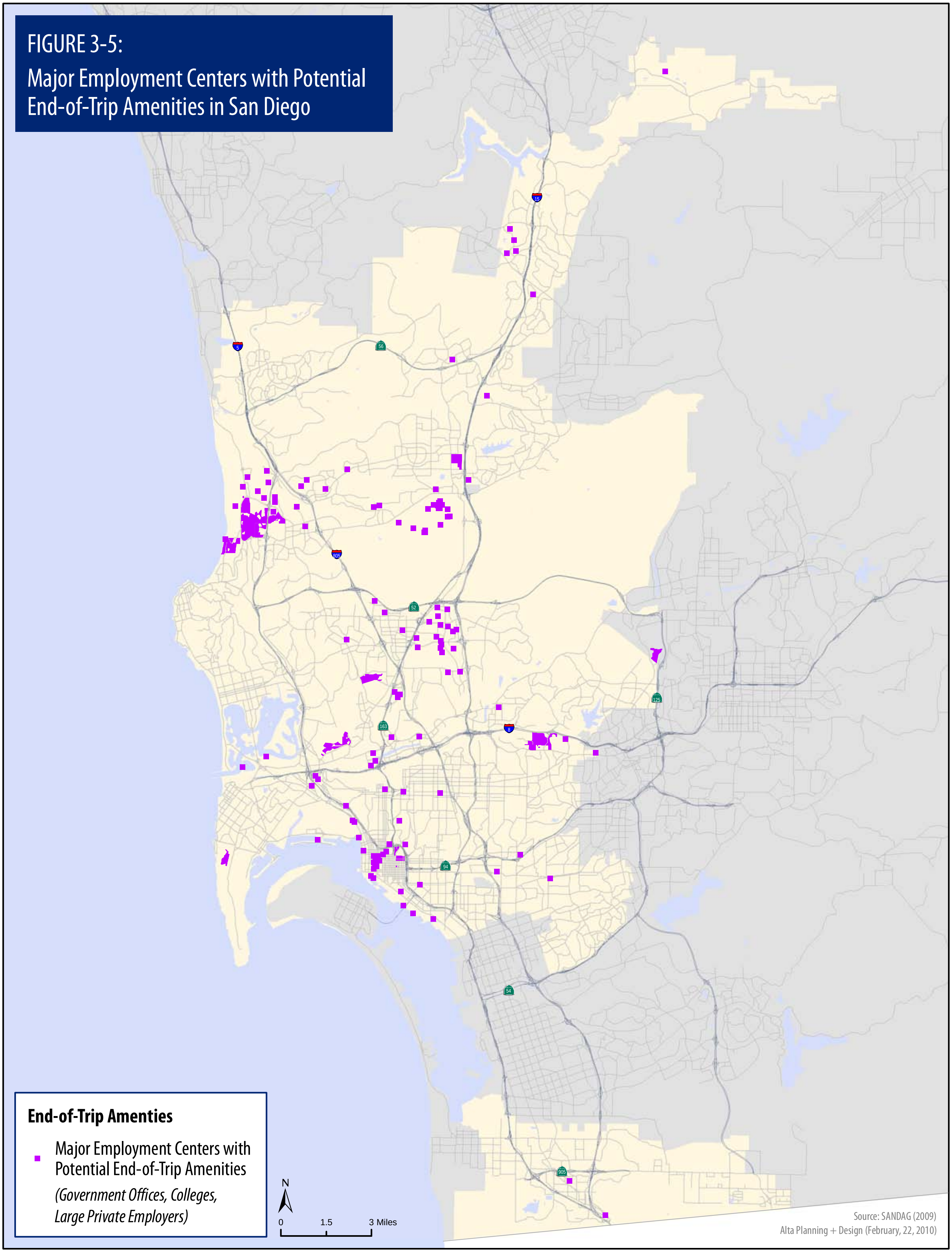
FIGURE 3-5: Major Employment Centers with Potential End-of-Trip Amenities in San Diego



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Multi-Modal Connections

Improving the bicycle-transit link is an important part of making bicycling a part of daily life in San Diego. Linking bicycles with mass transit (bus, trolley, commuter rail, and ferry) overcomes such barriers as lengthy trips, personal security concerns, and riding at night, in poor weather, or up hills. Park-and-ride locations provide for intermodal travel by bicyclists to carpools and vanpools. Bicycle parking facilities are often placed at these locations to facilitate links to ride-sharing activities. Bicycling to transit instead of driving benefits communities by reducing taxpayer costs, air pollution, demand for park-and-ride land, energy consumption, and traffic congestion with relatively low investment costs.

There are four main components of bicycle-transit integration:

- Allowing bicycles on transit
- Offering bicycle parking at transit locations
- Improving bikeways to transit
- Encouraging usage of bicycle and transit programs

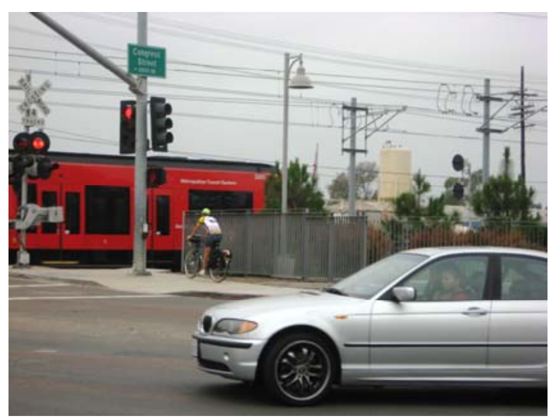
Currently, all San Diego Transit buses are equipped with bicycle racks that carry up to two bicycles on the front of each bus. Bicyclists may also bring bicycles onto the San Diego Trolley cars. However, the trolley cars are not equipped with racks to secure bicycles during trips. Bicyclists are instructed to stand and hold their bicycles upright in designated locations. This can be awkward for bicyclists, particularly during peak periods. Capacity restraints can also be an issue on the San Diego Trolley during peak periods of the day. **Figures 3-6** displays the locations of transit centers where bicycle parking facilities are located in the city. All existing Amtrak, Coaster, and Trolley stations currently have some form of bicycle parking facilities available. These include the following locations:

Amtrak

- Santa Fe Depot/San Diego

Coaster

- Santa Fe Depot/San Diego
- Old Town
- Sorrento Valley



Bicyclist approaching the Old Town Transit Center

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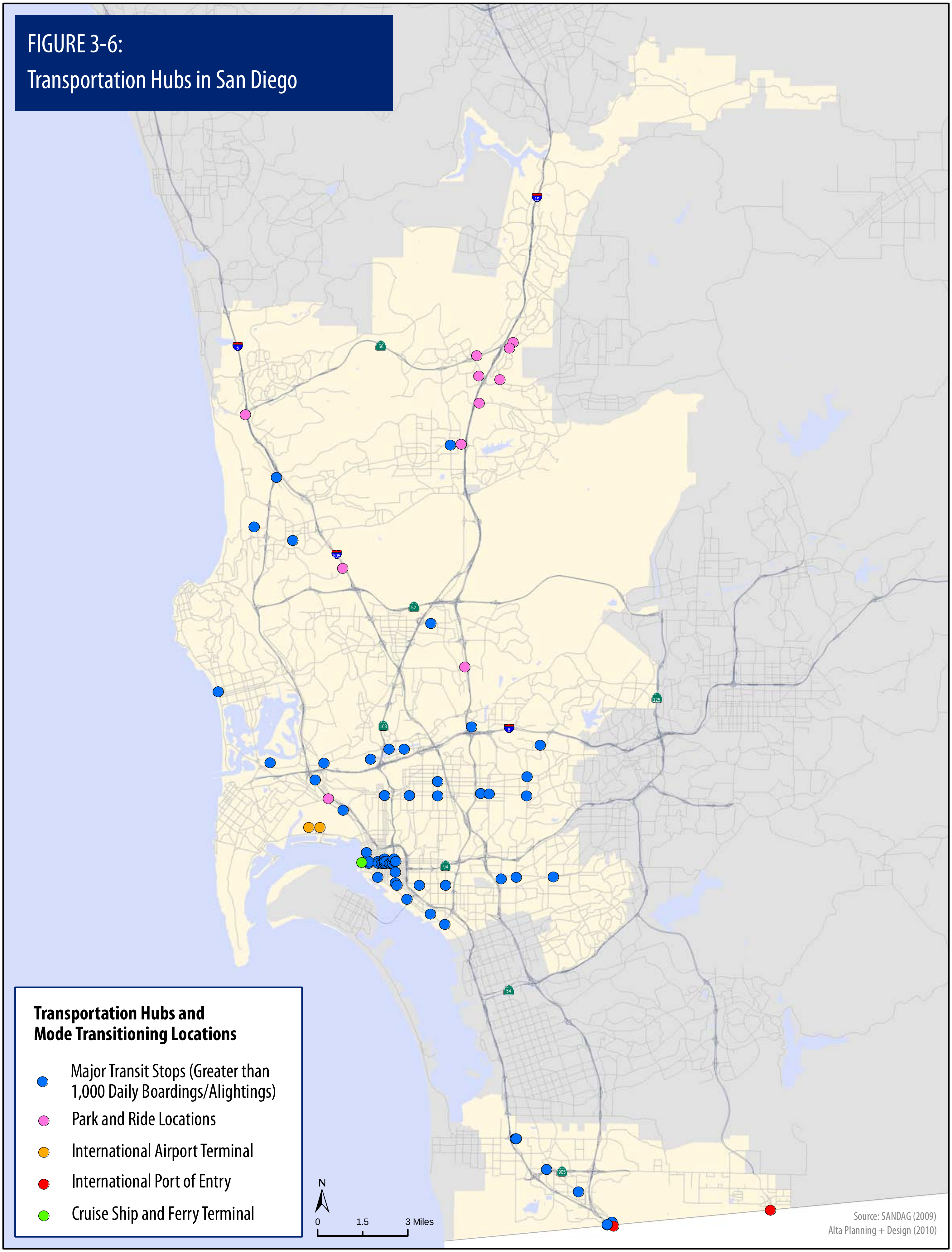
FIGURE 3-6:
Transportation Hubs in San Diego



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San Diego Trolley

- Alvarado Medical Center Station
- SDSU Transit Center
- Grantville
- Mission San Diego
- Qualcomm Stadium
- Rio Vista
- Mission Valley Center
- Hazard Center
- Fashion Valley Transit Center
- Morena/Linda Vista
- Old Town Transit Center
- Washington Street
- Middletown
- County Center/Little Italy
- Santa Fe Depot
- Gaslamp Quarter
- Convention Center
- Seaport Village
- American Plaza
- Civic Center
- 5th Avenue
- City College
- Park and Market
- 12th and Imperial Transit Center
- Barrio Logan
- Harborside
- Palm Avenue
- Iris Avenue
- Beyer Boulevard
- San Ysidro Transit Center

Numerous park-and-ride locations in the city offer intermodal connections for bicyclists to carpools and vanpools. Most of these locations are near freeways for those making longer distance trips, and several are located near the northern terminus of the I-15 Carpool/Fastrak lanes in order to facilitate use of the express lanes for carpooling commuters. Bicycle park-and-ride facilities are found at the following locations:

- Mira Mesa Bloulevard at I-15
- Black Mountain Road at Miramar College
- Vista Sorrento Parkway
- Taylor Street
- Governor Drive at I-805
- Carmel Valley Road at Sorrento Valley
- Sabre Springs Parkway at Poway Road
- Sabre Springs Parkway at Ted Williams Parkway
- Carmel Mountain Road at Rancho Carmel Drive
- Gilman Drive at I-5
- Rancho Carmel Road near Provencal Place
- Navajo Road at Cowles Mountain

Road

- 47th Street at Castana Street
- 62nd Street at Akins Avenue
- Palm Avenue at Hollister Avenue
- 30th Street at Iris Avenue
- Market St at Euclid Avenue
- Seaward Avenue

Boulevard

- Carmel Mountain Road at Paseo Cardiel
- Carmel Mountain Road at Stoney Creek Road
- Rancho Bernardo Road at I-15
- Rancho Penasquitos Boulevard at I-15
- Carmel Mountain Road at Freeport Road

The Coronado/San Diego Ferry allows bicycles on board for no additional charge for the trip between the Broadway Pier and Convention Center in downtown San Diego and the Coronado Ferry Landing. The Ferry departs from Broadway Pier on the hour from 9:00am until 9:00pm on weekdays, and 10:00pm on weekends; and from Coronado every half hour from 9:30am until 9:30pm, and 10:30 on weekends. Ferry service also serves the San Diego Convention Center, departing the Coronado Ferry Landing every other hour starting at 9:15am until 8:15pm.

Education, Awareness and Enforcement Programs

The City's bicycle education and awareness activities include such initiatives as public awareness campaigns, safety education programs for children, partnering with agencies and organizations in the region to host events and provide literature, and City staff presentations to various organizations.

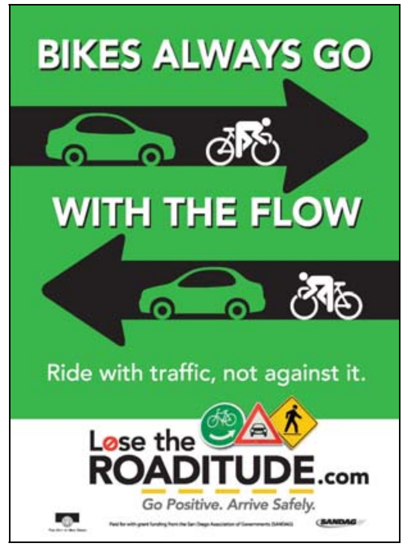
Public Awareness Campaign

In September 2009 the City, in partnership with SANDAG, launched the "Lose the Roaditude" public awareness campaign. The campaign targets bicyclists, motorists and pedestrians with the aim of promoting safe roadway behaviors. The campaign is intended to highlight unsafe practices and reinforce the following safety measures:

- Bicycling with the flow of traffic
- Wearing bright colors when bicycling or walking at night

- Crossing at crosswalks
- Crossing when pedestrian signals permit
- Looking both ways before crossing
- Stopping at red lights and stop signs
- Obeying the speed limits
- Sharing the road when no bike lane is present
- Stopping for pedestrians at intersections
- Being courteous toward other roadway users

The campaign relies on billboards, bus panels, transit shelters, circulars, the City TV 24 message board and the website to convey the "Lose the Roaditude" messages.



"Lose the Roaditude" was launched in 2009 with funding from SANDAG

Bicycle Safety Education Program

The City is in the process of establishing a Pedestrian and Bicycle Safety Education program that focuses on traffic safety in schools. The program will be modeled after the City's previous safety education program that was carried out through a contractual relationship with Safe Moves.

From mid-1999 through 2000 and 2005, the City contracted with Safe Moves to conduct bicycle and pedestrian safety education in primarily public elementary schools. The program was designed to create positive attitudes towards cycling while teaching personal traffic safety. It consisted of workshops, rodeos and a helmet program.

The safety education program reached thousands of kids through classroom workshops at elementary, middle and high schools. The bicycle portion of the course taught:

- Helmet use
- Choosing the right bike
- Proper bicycling clothing
- Recognition and avoidance of common bicycle collisions
- Bicycle maintenance and repair
- Rules, regulations and ordinances that govern bicyclists
- Bicycle registration
- Using safe bike routes to and from school
- Consequences of unsafe bicycle use

Safe Moves also conducted bicycle rodeos at elementary, middle and high schools designed to develop the following bicycle handling skills:

- Proper braking techniques for hills, wet pavement, sand, rain gutters, debris, car doors
- Proper mounting and dismounting techniques
- Left and right hand turns
- Left hand shoulder check
- Proper turning techniques and avoiding hazards

The third component of the San Diego safety education program consisted of a bike helmet program. Approximately 3,000 helmets were given away to school-aged children during the 18-month program in 1999 and 2000.

Last, Safe Moves conducted traffic safety rodeos in high-volume traffic neighborhoods. The target audience for these rodeos was families with school-aged children and neighborhood residents who drive in the area.

Police Department Enforcement

The San Diego Police Department enforces all traffic laws, for bicycles and motor vehicles as part of their regular duties. They ticket violators as they see them and respond to needs and problems as they arise. This includes bicyclists who break traffic laws, as well as motorists who disobey traffic laws and make the bicycling environment less safe. The level of enforcement depends on the availability of officers. A representative of the Police Department also served on the plan update Project Working Group (PWG) and provided substantive input during the development of this Plan.

The Police Department dispatches a fleet of 49 bicycle-mounted officers. These officers have had special training in bicycle safety and assist in enforcing traffic laws. They are especially qualified to enforce laws as they pertain to bicycles.

At present, it cannot be determined whether San Diego's education and encouragement programs and police enforcement efforts have had any effect on the number of bicyclists involved in accidents.

Constraints and Opportunities

With its many ridges, mesas, and canyons, San Diego's topography presents both constraints and opportunities for bicyclists in the city. The many hilly areas of the city can be a hindrance to commuting and recreational cyclists, and the narrow canyons can create chokepoints where automobile traffic becomes concentrated such as at the I-5/I-805 merge or in the I-15 corridor north of Mira Mesa. Many of these chokepoints have bikeway alternatives, such as the Rose Canyon path parallel to I-5, and bicycles have been permitted use of the freeway shoulders in some areas, such as along I-5 between Sorrento Valley and Genesee Avenue. In addition, many arterial streets are not continuous through an area where the freeway has been designated the primary automobile route. Examples include Murphy Canyon Road along I-15 near Friars Road, along SR-94 east of Kelton Avenue, and near the interchange of SR-94 and Home Avenue. In Murphy Canyon and along SR-94 near Kelton, Class I paths have been built to provide vital bicycle linkages, however near SR-94 and Home Avenue, no such linkage exists.

Bike paths have been built along many sections of the freeway system to provide critical bicycle linkages. These include I-15 between Mira Mesa and Sabre Springs, and adjacent to a majority of SR-56. One project currently in design will provide a critical connection between Mission Valley and Normal Heights via the I-15 corridor.

The city's canyons provide opportunities for bike paths in many locations. Many canyon corridors can provide for long stretches of bikeway uninterrupted by busy arterial streets. Such opportunities for canyon corridor bikeways include San Clemente Canyon, Rose Canyon east of Gilman Drive, Tecolote Canyon, Chollas Canyon, and other small canyons that could provide intra-neighborhood linkages in older parts of the city.

Bicyclist riding along 30th Street in the North Park neighborhood

Some areas of the city have numerous bikeway facilities and others have very few. Generally, older sections of the city have less bikeway infrastructure than newer areas. For example, Centre City, Southeast San Diego, the Mid-City communities, and Paradise Hills all have very little faciltiy. One reason for the lack of facilities in older areas of the city is the narrow curb-to-curb street widths that would require reengineering to include bike lanes or to provide adequate room for bicycles in a wide curb lane. Most of the streets in these areas also have curbside parking, which can be an obstacle to the implementation of bikeways.

Most areas of the city could benefit from an increase in bikeway mileage, and there are numerous gaps in the existing system, such as along Friars Road near SR-163. Although there is a significant amount of bicycle facility in San Diego, more is needed in underserved areas and where there are obvious gaps in the network.

IV. Relationship to Other Plans and Policies

This chapter provides a summary of bicycle-related legislation and other planning or policy documents from the State of California, SANDAG, and the City of San Diego. Legislation, plans and policies are considered relevant if they directly address bicycle facilities, or if they address land use patterns that affect bicycle planning.

State Policies

The California Bicycle Transportation Act (1994) is perhaps one of the most important pieces of bicycle-related legislation and requires all cities and counties to have an adopted bicycle master plan in order to qualify to apply for the Bicycle Transportation Account funding source. Caltrans plays an oversight and review role for TEA-21 funding programs for bicycle projects. All of these bicycle-funding programs require approval of a bicycle master plan with specified elements in order to qualify for the programs. Two additional pieces of State legislation were recently adopted and directly relate to bicycle planning at the local and regional levels and are described below.

California Government Code §65302

California Assembly Bill (AB) 1358, also known as the Complete Streets Bill, amended the California Government Code §65302 to require that all major revisions to a city or county's Circulation Element include provisions for the accommodation of all roadway users including bicyclists and pedestrians. Accommodations include bikeways, sidewalks, crosswalks, and curb extensions. The Government Code §65302 reads:

> "(2)(A)Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.
>
> (B)For purposes of this paragraph, "users of streets, roads, and highways" means bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors."

California SB 375 – Sustainable Communities (2009)

Senate Bill (SB) 375 requires metropolitan planning organizations in California to create a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan. The SCS must identify ways the region will meet the greenhouse gas emissions targets outlined by the California Air Resources Board. One way to help meet the greenhouse gas emissions targets is to increase the bicycle mode share, substituting bicycle trips for automobile trips.

In addition to these policies, the *California Highway Design Manual* contains bikeway design standards and the *California MUTCD* includes specifications for traffic control devices, signs and pavement markings that must be adhered to in California.

Regional Bicycle Plan

As of February 2010, the San Diego Regional Bicycle Plan is in public draft form. The Regional Bicycle Plan proposes a unified bicycle network for the San Diego region by the year 2030, providing bikeway connections to activity centers, transit facilities, and regional trail systems in addition to bicycle education, marketing/awareness campaigns, encouragement, enforcement, and monitoring and evaluation programs.

Figure 4-1 displays the San Diego Regional Bicycle Plan revenue constrained network.

San Diego General Plan – Mobility Element

As presented in Chapter 2, the 2008 San Diego General Plan's Mobility Element has a section dedicated to bicycle planning goals and policies. The three overarching goals are:

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation and mobility benefits through increased bicycling

The Mobility Element specifically calls out the Bicycle Master Plan as the guiding document for implementation of bikeways, support facilities, and bicycling programs over the next 20 years. Policies under the three overarching goals include identifying and funding bikeways that serve employment centers, village centers, schools, commercial districts, transit stations, and institutions as well as maintaining the network, providing long- and short-term bike parking, increasing bike-transit trips, and developing bicycle education and safety programs.

Several other policies under other goal sections reference bicycling in San Diego. These include increasing bicycling to school programs, providing interconnected streets that provide bicycle access, incorporating bicycle access with traffic calming measures, and including bicycle infrastructure projects and programs in transportation demand management. These goals and policies were considered in the development of this Plan's overarching policy statements and in the recommendations.

Community Plans

The city of San Diego is comprised of a number of communities that stretch from the coast to inland hills and mesas. These communities have different physical, community, and design characteristics that define one community from another.

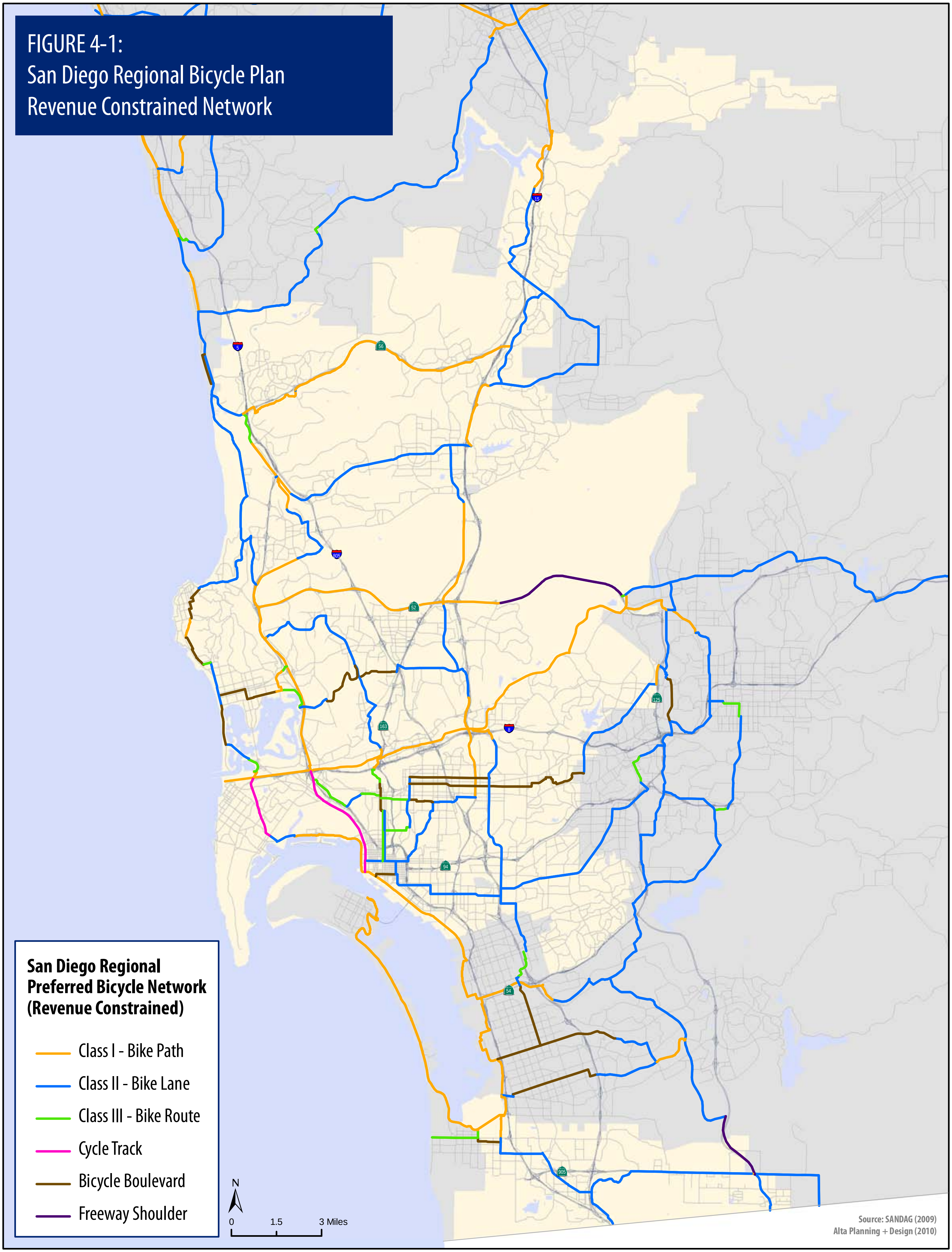


FIGURE 4-1:
San Diego Regional Bicycle Plan
Revenue Constrained Network

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The following is a short summary of the goals for each community plan as they relate to bicycle facilities and a description of the proposed bicycle facilities at the time the Community Plan was adopted. Development of a system of bicycle facilities within this Plan considers community goals, future bicycle facilities for each community, and a regional network that provides continuity and connectivity.

Many of the Community Plans are dated and some of the facilities mentioned in the plans have been installed since the plans were adopted. **Table 4.1** lists the Community Plans and the year of adoption or most recent revision.

Table 4-1: San Diego Community Plans

Community Plan	Adoption Year of Current Plans	Notes
Barrio Logan Community Plan	1978	Undergoing update
Black Mountain Ranch Subarea Plan	1998	
Carmel Mountain Ranch Community Plan	1984	Minor revisions in 1995
Carmel Valley (North City West) Community Plan	1975	Specific Plans added in 1997
Centre City/Downtown Community Plan	2006	
Clairemont Mesa Community Plan	1989	
College Area Community Plan	1989	
Del Mar Mesa Specific Plan	2000	
East Elliot	2002	
Fairbanks Ranch Country Club Specific Plan	1982	
Greater Golden Hill Community Plan	1990	
Greater North Park Community Plan	1986	Undergoing update
Kearny Mesa Community Plan	2002	
La Jolla Community Plan	2004	
Linda Vista Community Plan	1998	
Midway/Pacific Highway Corridor Community Plan	1991	Update to begin in 2010
Mid-City Communities Plan (City Heights, Eastern Areas)	1998	
Miramar Ranch North	1980	
Mira Mesa Community Plan	1992	Last amended in 2001
Mission Beach Precise Plan	1974	Amended in 1982
Mission Valley Community Plan	2008	
Navajo Community Plan	1982	
Normal Heights	1998	
North City West	NA	
Ocean Beach Local Coastal Program	1991, NA	Undergoing update
Old Town San Diego Community Plan	1987	
Otay Mesa	1981	Undergoing update
Otay Mesa-Nestor Community Plan	1997	
Pacific Beach Community Plan and Local Coastal Program Land Use Plan	1995	
Pacific Highlands Ranch	1998	
Peninsula Community Plan and Local Coastal Program Land Use Plan	1981	Last amended in 1999
Rancho Bernardo Community Plan	1988	
Rancho Encantada	2001	
Rancho Penasquitos Community Plan	1993	Amendment proposed
Sabre Springs Community Plan	1982	
San Pasqual Valley Plan	1995	

Community Plan	Adoption Year of Current Plans	Notes
San Ysidro Community Plan	2000	Last amended in 2000
Scripps Miramar Ranch Community Plan	1978	
Serra Mesa Community Plan	1977	Last amended in 2000
Skyline-Paradise Hills Community Plan	1987	
Southeast San Diego Community Plan (Encanto)	1987	
Tierrasanta Community Plan	1982	
Tijuana River Valley	1976	
Torrey Highlands	1996	
Torrey Hills	1997	
Torrey Pines	1995	
University Community Plan	1990	
Uptown Community Plan	1988	Undergoing update
Via de la Valle	1984	

Source: Alta Planning + Design, February 2010

Barrio Logan Community Plan

The City and Barrio Logan community are currently updating the original 1978 plan. The updated version will be complete in 2010. At the time the community plan was adopted in 1978, no bikeway facilities existed.

Black Mountain Ranch Sub-Area Plan

This community plan was adopted and approved in 1998. All primary and major roadways within the Black Mountain Ranch area, including the North Village, include plans for bicycle lanes. The plan indicates that appropriate bicycle parking facilities are required at major activity centers and proposes bike lanes on the following regional connectors: Camino del Norte, Camino Ruiz, and Carmel Valley Road. Bike lanes currently exist along Carmel Valley Road through the community. Bike lanes also existing along San Dieguito Road, Camino del Sur, and Paseo del Sur.

Carmel Mountain Ranch Community Plan

This plan includes a system of bicycle facilities intended to connect residences with community facilities, services, and open space, and to provide connections between neighborhoods. The 1984 plan recommends safe, accessible pathways within neighborhoods, through open spaces, public utility easements, and along roadways. The plan's bikeway map primarily recommends bicycle lanes along major corridors.

Carmel Valley (North City West) Community Plan

The current Carmel Valley Community Plan was adopted in 1975. There are also precise plans for neighborhoods identified in the community plan. The community plan proposes bike lanes for the arterial streets of El Camino Real and Del Mar Heights Road to connect to proposed community bicycle and pedestrian paths and bike lanes. Bike lanes have been built along El Camino Real and Del Mar Heights Road since this plan was adopted. Additionally, the plan recommends Class I path connections through cul-de-sacs to prevent circuitous routes. Many of these bike path segments have been built. Bike paths provide connections to the area's open space and to East Torrey Pines High School. The plan recommends bicycle racks and lockers and indicates that bicycle racks should be closer to activity centers than the closest vehicle parking space.

Centre City/Downtown Community Plan

The Downtown Community Plan was adopted by City Council in 2006. One goal of the proposed transportation system is to "develop a cohesive and attractive walking and bicycle system within downtown that provides links within the area and to surrounding neighborhoods" (7.2-G-1) with a policy that reads: "Require bike racks and locking systems in all residential projects, multi-tenant retail and office projects, and government and institutional uses" (7.2-P-3). The plan includes a network of streets for bike lanes or bike paths with connections to the Bayshore Bikeway and surrounding neighborhoods. The Centre City Development Corporation developed the Downtown Community Plan and has worked with the City through this plan update process to ensure the community plan and bicycle plan are consistent.

Bicyclist riding along Harbor Drive in Centre City

Clairemont Mesa Community Plan

The Clairemont Mesa Community Plan states that its objective is to create a system of bicycle lanes and paths that link parks, recreation areas, schools, and commercial areas throughout the community. The plan proposes many bike paths, lanes, and routes with an emphasis on the development of those facilities south of SR-52 and along Genesse Avenue. Genesee Avenue currently has bike lanes along the length of the community with the exception of a small segment of bike route in the northern part of the community. The plan also recommends that the San Clemente Canyon Bikeway (I-5 to I-805) run along the northern boundary of Marian Bear Memorial Park to ensure that the bikeway does not interfere with biological resources in the canyon park. The San Clemente Canyon Bikeway has not been built. The plan indicates that bikeway signs should include directional signage to lead bicyclists to their desired destinations and that secure bicycle racks should be placed in visible locations near building entrances, and that employers should provide bicycle lockers for employees that commute by bicycle. Bikeways in this area should be directed to serve future Trolley and bus transit stations with bicycle racks and lockers at each location.

College Area Community Plan

At the time this plan was adopted in 1989, proposed bikeway facilities included primarily bike lanes and routes, most of which were planned to follow major corridors in the community. The plan also recommends completion of the following bikeway facilities:

- Bike lanes on College Avenue
- Bike lanes on El Cajon Boulevard, east from College Avenue

- Bike route along Alvarado Road from College Avenue to 70th Street
- Bike lanes on 70th Street between Alvarado Road and Montezuma Road
- Bike route on Remington Drive west to Dover Drive
- Bike route along the Plaza Drive right-of-way between College Avenue and 55th Street
- Bike route on Monroe Street west of Collwood Boulevard
- Upgrade of the Class III bike route on Montezuma Road and Collwood Boulevard to Class II lanes

Currently, the only existing bike lanes are along:

- Montezuma Road from the west to east termini, with a segment of bike route between 55th Street and Campanile Drive, as proposed in the 1989 plan
- 70th Street, as proposed in the 1989 plan
- Remington Road/55th Street from Hewlett Drive to Montezuma Road
- Collwood Boulevard from Montezuma Road to Monroe Avenue, where it becomes bike route through the community's southern boundary
- Alvarado Road from Campus Drive to the community's western boundary

In addition, the plan recommends that all bike facilities should include approved signage; all new commercial or multi-family developments should provide bicycle-parking facilities; and parking facilities should be provided at the San Diego State University (SDSU) transit center. Specific suggestions are made for the SDSU campus to provide more bicycle racks, lockers, and improved signage.

Del Mar Mesa Specific Plan

The Del Mar Mesa Specific Plan, adopted in 2000, proposes six-foot wide Class II bike lanes on Carmel Mountain Road and Camino Santa Fe. Currently there are no on-street facilities in the community. The plan also proposes a system of multi-use trails adjacent to all Circulation Element roadways. These trails are proposed to accommodate bicyclists, pedestrians and horseback riding activities with a ten foot right of way separated from the roadway by a six-foot landscaped parkway.

East Elliott Community Plan

East Elliot's Community Plan was most revised in 2002, designating the majority of the community sanitary fill and potential landfill. There are no proposed bikeways.

Fairbanks Ranch Country Club Specific Plan

This community plan, adopted in 1982, briefly discusses the deeding of the river valley and adjacent slopes to the city of San Diego and utilizing the remaining open space for possible riding and/or hiking trails.

Greater Golden Hill Community Plan

The most recently revised Greater Golden Hill Community Plan (1990) states that an extensive bikeway system for this area is not feasible due to topography. However, it does recommend developing a bikeway system to provide access within the community, to regional destinations such as Balboa Park, adjacent communities, and four recreational areas (Grape Street picnic area, Golden Hill Park, the 28th Street Strip, and Golden Hill Community Center). The plan recommends extensive signing for bikeway users including destination plates, route signs, and arrows for users to ensure that they are able to follow the designated route. The plan also recommends bicycle parking facilities at major activity centers and transit centers. It has established the goal of reducing traffic in the community by encouraging alternative transportation, including bicycling.

Greater North Park Community Plan

The Greater North Park Community Plan of 1990, states that there are no bike lanes in this community.

The plan recommends implementing an extensive bikeway system that provides access to community attractions and regional destinations such as Balboa Park and adjacent communities. The plan also recommends bicycle racks and lockers be installed in visible locations with appropriate signage. The following roadways are cited as those that should be included in a comprehensive bikeway system:

- Howard Avenue
- Adams Avenue
- Landis Street
- Morley Field Drive
- Upas Street
- Thorn Street
- Juniper Street
- Park Boulevard
- Louisiana Street
- Texas Street
- 28th Street
- Utah Street
- Boundary Street
- Niles Street
- University Avenue at Lincoln Avenue

Since the adoption of the plan, bike lanes have been installed along a northern segment of Texas Street into Mission Valley and along the majority of Utah Street. Bike routes currently exist along Howard Street and along the eastern portion of Landis Street.

Bicyclist rid ing on the Utah Street bike

Midway/Pacific Highway Corridor Community Plan

The Midway/Pacific Highway Corridor Community Plan and Local Coastal Program Land Use Plan was adopted in 1991 and most recently amended in 2006. This community plan establishes a policy to "promote access to commercial centers, employment sites, and coastal and recreational areas by providing bicycle access along major public thoroughfares". Additionally, the plan sets forth an Action Plan for implementing the recommended bicycle facilities. The plan proposes bike lanes along Rosecrans Street, Midway Drive, Sports Arena Boulevard, Kurtz Street, Pacific Highway, Lytton Street and Barnett Avenue and Class I path along the canal alignment. Currently, bike lanes exist along portions of Rosecrans Street and Pacific Highway.

Mid-City Communities Plan (City Heights, Normal heights, Eastern Areas, Kensington-Talmadge)

A vision statement of the Mid-City Community Plan is to "encourage and enhance pedestrian and bicycling as effective modes of personal transportation." The approved bicycle system identifies primarily Class II bike lanes along the major roadways including Fairmont Avenue, 54th Street, Chollas Parkway, College Grove, Federal Boulevard, and Monroe Avenue. At present, none of these roadways have bike lanes.

Miramar Ranch North Community Plan

An objective of the Miramar Ranch North Plan is to develop a system of bikeways tying into the regional network and connecting to the I-15 pathway. The plan proposes Class II bike lanes on Spring Canyon Road, Scripps Ranch Boulevard, and Cypress Canyon; and bicycle parking facilities at schools, industrial areas, parks, and the I-15 / Mercy Road interchange park-and-ride. All of three roadways listed above currently have bike lanes.

Mira Mesa Community Plan

The Mira Mesa Community Plan identifies a system of bikeways and standards. Class II bike lanes are recommended along major roadways including Carroll Canyon Road, Carroll Road, Miramar Road, Mira Mesa Boulevard, Sorrento Valley Road, Black Mountain Road, Camino Ruiz, and Camino Sante Fe. Most of these facilities have been constructed since this community plan was adopted. Also since that time, the City has planned to close gaps in the Mira Mesa Boulevard Class II facility through the community.

Mission Beach Precise Plan

Due to traffic congestion and lack of parking, biking is a convenient form of transportation in this area. Bicycle activity primarily occurs along a 2-mile stretch along the beach known as the Ocean Front Walk. The Bayside Walk is also a popular multi-use pathway along the shores of Mission Bay. The Plan recommends widening both Ocean Front Walk and the Bayside Walk in order to accommodate the demand for these frequently used multi-use pathways. The Ocean Front Walk has been widened however the Bayside Walk has not been widened. The plan also recommends bike routes extending the entire length of the community.

Mission Valley Community Plan

An objective of the plan is to "create an intra-community bikeway system which would provide access to the various land use developments within the Mission Valley and connect to the regional system" and to "encourage bicycle use in the Valley." The plan identifies a bicycle system that utilizes major roadways and offers Class I paths where they can be accommodated. The key components of the bikeway system include connections to Mission Bay, activity centers within Mission Valley, and Mission Hills. The plan recommends support bicycle facilities including installing bicycle sensitive signal detectors at signalized intersections, requiring development fees to improve bicycle facilities, and providing lockers, showers, and changing facilities at major developments in order to encourage bicycling as a convenient mode of transportation.

Since this community plan was adopted, Mission Valley has had an extensive system of Class I bikeways developed. Class I facilities now exist on both sides of the San Diego River. Plans are to close gaps in the existing network and extend it easterly into the Navajo community to connect to Mission Trails Regional Park and eventually to the Santee city limit. The City of San Diego plans to eliminate grade crossings at major intersections with bridges.

Navajo Community Plan

At the time of its adoption, this community plan identified existing Class II bike lanes along Navajo Road and Lake Murray Boulevard. Proposed bicycle facilities include:

- Regional Class I bike route from the beach through Mission Valley to Mission Trails Regional Park along the San Diego River (incomplete)
- A 2.0 mile bike route along Del Cerro Boulevard (unbuilt)
- A 2.0 mile bike route connecting the Allied Gardens bike route and the proposed San Diego River route in the vicinity of Zion Avenue (bike route exists along Zion Avenue)
- An extension of the Jackson Drive route connecting to the San Carlos Community Center.

Since the time of this Plan's adoption, three bikeway facilities have been developed, including Class II lanes on Mission Gorge Road and Jackson Drive.

North City West

The North City West Community Plan identifies two types of bikeway systems. The first is a neighborhood bikeway system that is described as providing links between neighborhood parks, elementary schools, and commercial and residential areas. The second is the community bikeway system, which would link neighborhoods to large activity centers, secondary schools, and employment centers. The Plan recommends linking the community system to a citywide bicycle network. It recognizes the need for secure bicycle racks at areas such as transit stops, schools, parks, libraries, and in commercial areas. The Plan suggests that the bikeway systems should parallel but be physically separated from all major and collector streets. Additionally, street crossings on high volume roadways should be minimized and grade separated crossings utilized wherever possible.

Ocean Beach Local Coastal Program

At the time of adoption of the LCP in 1986, there were a limited number of bikeway facilities in Ocean Beach. Now Class III bikeways exist on Voltaire, Abbot, Newport, Cable, and Orchard Avenues, and Sunset Cliffs Boulevard. The plan recognizes that bicycling is an important mode of transportation for short trips to stores and to the beach. The Plan sets the goal to develop a system of bikeways that links Ocean Beach to surrounding bicycle facilities and to develop an intra-community bikeway network that links various activity centers within Ocean Beach. The Plan identifies as a priority a north-south bikeway through Ocean Beach along the coastline. According to the Plan, developing bicycle facilities should minimize potential conflicts between bicycles and cars, both moving and parked. Since this Plan was adopted, the Ocean Beach Class I path along the San Diego River has been extended to Robb Field.

Old Town San Diego Community Plan

The Plan recommends implementing a design for bikeway corridors along Taylor Street and Pacific Highway. The route is recommended as a Class I bicycle path to provide the safety along these high traffic areas. Class III bikeways along other streets are recommended instead of Class II lanes due to the existence of narrow street widths and on-street parking.

Otay Mesa

This Plan is currently being updated.

Otay Mesa-Nestor Community Plan

A bicycle system adopted in 1979 identifies the Bayshore Bikeway project, which is currently a funded project to extend the Class I bikeway north through the cities of Chula Vista and National City and will connect with the Silver Strand Bikeway and Coronado to the west. In 2009, a one mile segment of the Bayshore Bikeway was completed connecting the Saturn Boulevard Bike Path to the Silver Strand Bike Path.

Pacific Beach Community Plan and Local Coastal Program Land Use Plan

Pacific Beach identifies a bikeway system for both commuter-oriented use and recreational use consisting of Class I, II, and III facilities. The Plan encourages bicycle usage for both leisure and work trips. Developed within a grid roadway network, Pacific Beach lends itself to bicycle commuting. Existing bikeways consists of a Class I bikeway around Sail Bay (Sail Bay Bikeway Path) that continues around Crown Point at which point bicyclists are directed to a Class II bike lane on Crown Pointe Drive. Other Class I pathways include the very popular Ocean Front Walk along the beach and the Rose Creek Bike Path, which is a regional route linking to University City and the UCSD area to the north.

There is existing Class II facility shown in Pacific Beach along Soledad Mountain Road, Foothill Boulevard, and Grand Avenue. Future Bikeway maps in the Plan identify future bike lanes along the entire Grand Avenue corridor, connecting the Ocean Front Walk to the Rose Creek Bike Path. Class III bike routes are proposed in the community plan for Loring Street, Cass Street, Mission Boulevard, Pacific Beach Drive, Jewel Street, and Lamont Street. A Class III facility currently exists along Hornblend Avenue and serves as an alternate to Garnet and Grand Avenues.

Pacific Highlands Ranch

In Pacific Highlands Ranch, bike lanes are proposed on all cross-sections of roadway types and proposed pending feasibility.

Peninsula Community Plan

The Peninsula Community Plan states that efforts should be made to encourage and facilitate the use of public transportation as an alternative to the automobile. The plan recommends that a bikeway system be developed that provides a systematic network of bikeways between major activity centers focusing, where practical, on less traveled streets. The Plan also recommends that bicycle parking facilities be located at businesses and retail centers and at heavily used beach front and bay front areas. A system of bikeways is identified which includes major streets such as Rosecrans Street, Chatsworth and Nimitz Boulevards, and Canon Street. The Plan recommends exploration of a bikeway to connect to the Sunset Cliffs corridor. Since the adoption of this Plan, Class II bikeways have been built along Nimitz Boulevard, Cabrillo Memorial Drive, and portions of Rosecrans Street. Other Class III facilities are located along Catalina Boulevard and several streets near Point Loma Nazarene University.

Rancho Bernardo Community Plan

Recognizing the increased usage of bicycles throughout San Diego, this Community Plan identifies a system of existing and proposed bikeways. Many of the major roadways in Rancho Bernardo already include Class II lanes, such as Rancho Bernardo Road, Bernardo Center Drive, Camino Del Norte, West Bernardo Drive, Bernardo Heights Parkway and Pomerado Road. In 2009, the Lake Hodges Bike Path bridge was completed, providing improved connections to the city of Escondido. Throughout the community, Class III bikeways are proposed for most of the community's street network. The Plan identifies the need for bicycle parking facilities and bicycle lockers for employees arriving at major activity centers.

Rancho Encantada

Class II bicycle lanes in Rancho Encantada will follow Pomerado Road and Stonebridge Parkway. Class III bicycle routes will accommodate bicycle travel on local residential streets. Bicycle parking facilities are anticipated at the public school/park site.

Rancho Penasquitos Community Plan

The Rancho Penasquitos Community Plan recommends that a bikeway system provide access from residential areas to public facilities, commercial destinations, and link neighborhoods. The plan recommends implementing Class II lanes on all major streets and Class I paths along the County Water Authority's right-of-way and through public parklands including Black Mountain Park and Los Penasquitos Canyon Preserve. In addition, the Plan recommends that bike lockers and locking racks be located at major activity and transit centers. A Class I bikeway currently exists along the southern edge of the SR-56 freeway from I-5 to Rancho Penasquitos Boulevard.

Sabre Springs Community Plan

This Community Plan identifies a number of bikeways to provide internal circulation within Sabre Springs and connections to surrounding communities. An existing Class I bicycle path is located adjacent to I-15 from Poway Road to near Mira Mesa Boulevard. A planned Class I facility would serve the park south of Penasquitos Creek. Bicycle lanes are provided along Poway Road and Sabre Springs Parkway.

San Pasqual Valley Plan

The existing bikeway system in the San Pasqual Valley is limited to the newly constructed Lake Hodges Bike Path connecting Rancho Bernardo with the city of Escondido. The community plan identifies goals that support a bicycle circulation system throughout the Valley with connections to bikeways in adjacent communities. The future widening of major two-lane roads in the community will facilitate bicycle lane improvements. Via Rancho Parkway, Cloverdale Road, San Pasqual Road, and Highland Valley Road are designated to be widened to include bicycle lanes. The Plan includes a proposed Class I path along the San Dieguito River climbing through a finger canyon along the steep south slope of the Valley.

San Ysidro

The San Ysidro Community Plan proposes a number of bikeways.

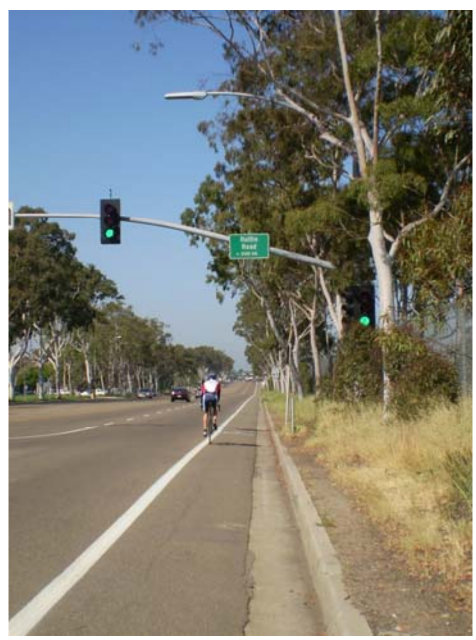
- Dairy Mart Road from Beyer Boulevard to Monument Road
- Smythe Avenue from SR-905 to Beyer Boulevard
- Willow Road from San Ysidro Boulevard to Camino de la Plaza with a grade separated crossing of I-5
- Beyer Boulevard between SR-905 and Siempre Viva Road
- Otay Mesa Road between Beyer Boulevard and SR-905

- Camino de la Plaza between Dairy Mart Road and San Ysidro Boulevard.
- San Ysidro Boulevard from Dairy Mart Road to Camino de la Plaza
- East Beyer Boulevard from Otay Mesa Road to San Ysidro Boulevard
- Smythe Avenue from Beyer Boulevard to San Ysidro Boulevard
- Border Village Road along the entire length of the proposed couplet
- Camiones Way/I-5 (southbound only) from Camino de la Plaza to the international border
- Virginia Avenue, if the commercial border crossing is closed and reopened as a pedestrian crossing, from Camino de la Plaza to the international border

Additionally, the Plan calls for Pacific Coast Bicentennial bike route signs and a map and kiosk of the route, a monument at the border encouraging bicycle use, and providing a bicycle only lane at the border crossing. Portions of Class II bike lane have been built along Dairy Mart Road, Smythe Avenue and East Beyer Boulevard.

Scripps Miramar Ranch Community Plan

The Scripps Miramar Ranch Community Plan states that non-motorized transportation be accommodated through the development of accessible pathways and/or sidewalks and bikeways along parking strips and sidewalks in all residential areas. A Non-Motorized Circulation Element included in the Plan identifies a system of bikeways and hiking and equestrian trails. The bikeways include the highly used Class I bikeway around Miramar Reservoir and along Interstate 15, which connects with Poway Road to the north. Class II bikeways are identified along the major roads including Carroll Canyon Road, Mira Mesa Boulevard, and Scripps Lake Drive. Class III routes are identified on Mesa Madra Drive, Sunset Ridge Drive, Spring Canyon Road, Pomerado Road, and Avenida Magnifica.



Bicyclist riding on the Aero Drive bike lane

Serra Mesa Community Plan

The Serra Mesa Community Plan states that a community bikeway system should be designated as reflected on the Bikeways Map shown in the Plan. Bicycle facilities on Aero Drive, Murphy Canyon Road, Mission Village Drive and Murray Ridge Road have been built since the adoption of the community plan. The Plan also suggests improving vehicular/bicycle connections through the use of "bicycle park-bus ride" and "piggy-back" bicycle bus transportation concepts.

Skyline-Paradise Hills Community Plan

This Plan identifies a system of bicycle facilities although none of the facilities at the time of the adoption (1987) of the Community Plan had been implemented. The proposed bikeway system identifies the development of Class I paths within the Encanto open space area and along Jamacha Road to accommodate both alternative modes of transportation and passive recreational use. Bicycle lanes are identified on Paradise Valley Road and Skyline Drive. Class III bikeway facilities are located along streets such as Potomac Street, Parkside Avenue, Alta View Drive, and Woodman Street.

Sorrento Hills Community Plan

The Sorrento Hills Community Plan proposes a network of bicycle facilities through Sorrento Hills. These bikeways include Carmel Mountain Road, El Camino Real, Vista Sorrento Parkway, Arroyo Sorrento Road and Carmel Creek Road. The Plan also recommends a bikeway along C Street to connect to the Community Sports Park. All streets designated as major streets are proposed to have Class II bicycle lanes with the exception of Vista Sorrento Parkway, south of the Penasquitos Creek crossing, where a Class III bicycle route is recommended for this segment. The Plan recommends developing a system of bikeways, which includes bicycle storage facilities, which ties into the regional bicycle network.

Southeast San Diego Community Plan (Encanto)

This community plan notes that the surface streets provide excellent access to San Diego Bay, Balboa Park and downtown for both recreational and commuter bicyclists, and most of the roadways are proposed as Class III bike routes. On-street bike routes have been designated for 28th Street, L Street, Ocean View Boulevard, and Alpha Street. According to the plan, two Class I paths are located in this area: one parallel to I-805 between Hilltop Drive and the railroad tracks and one parallel to SR-94 between Kelton Road and 60th Street. Bike path exists along SR-94.

Currently, bike routes exist along segments of Market Street, Imperial Avenue, Valencia Parkway, and Euclid Avenue. Portions of Imperial Avenue, Churchward Street, and Skyline Drive have bike lanes.

Tierrasanta Community Plan

Personal health and the environment are some important reasons for bicycling according to the Tierrasanta Community Plan. In response, the plan encourages alternative forms of transportation and a bikeway system for both community and regional needs. The bikeway plan identifies Class II lanes along Clairemont Mesa Boulevard, Tierrasanta Boulevard, and Spring Canyon Road. Bike lanes currently exist along Clairemont Mesa Boulevard, Tierrasanta Boulevard but not along Spring Canyon Road. A feasibility study has recently been completed for a Class I path to close the gap between Tierrasanta Boulevard and Mission Gorge Road. Funding is currently being pursued for this project.

Torrey Highlands

Torrey Highlands contains several bikeways which travel the span of the community providing access to adjacent communities, including: the SR-56 Bike Path, Carmel Valley Road and Camino del Sur.

Torrey Hills

Torrey Hills Community Plan has proposed and built on street bikeways along Carmel Mountain Road and El Camino Real and along Vista Sorrento Parkway. Class II bicycle facility also exists along Ocean Air Drive.

Torrey Pines

Class I and II bicycle lanes have been constructed along the northern portion of Sorrento Valley Road between Carmel Valley Road and the Sorrento Valley Industrial Park. The Coastal Rail Trail alignment is proposed to travel along the Santa Fe railroad.

University Community Plan

As of the date of adoption of the community plan (1990), a system of bikeways was already established. Class I bikeways include the Rose Canyon Bikeway and portions along North Torrey Pines Road. Class II bicycle lanes include the La Jolla Colony Drive, Palmillas Drive, Arriba Street, Governor Drive, Genesee Avenue, Miramar Road, Eastgate Mall, North Torrey Pines Road, and Nobel Drive. Since there is no parallel roadway from Sorrento Valley Road to Genesee Avenue, bicyclists are permitted to utilize the shoulder of Interstate 5 between these two freeway exits. The proposed Coastal Rail Trail project will traverse the University Community. Its route is planned to run along Genesee Avenue from Rose Canyon to north of Eastgate Mall where a Class I path is planned to connect to Sorrento Valley Road.

Uptown Community Plan

Uptown is a popular cycling area due to its proximity to major employment centers and recreation areas. The community is easily accessible to downtown San Diego, Balboa Park, Old Town, and the Embarcadero. Recognizing the advantages of the community to these areas, an objective of the Plan is to:

> "Develop a comprehensive bikeway system which would not only provide a safe connection between neighborhoods, schools and commercial areas, but which would connect with bikeways in neighboring communities and Centre City."

East-west Class III bikeways are identified along streets including Presidio Park and Fort Stockton Drives, University Avenue, Third Avenue, and Upas Street. Existing north-south Class III routes include Goldfinch Street, Reynard Way, Fourth and Sixth Avenues south of Upas Street, and Fifth Avenue south of Juniper Street. The proposed bikeway system includes additional linkages to Old Town, Centre City, and the Middletown area. The Plan states that, whenever possible, bicycle lockers or specified areas for bicycle parking should be provided to cycling employees. Employer incentives that allow flexible hours for bike commuters should be considered.

Via de la Valle

Via de la Valle has a Class II bikeway, providing connections between the city of Del Mar and El Camino Real. Class II also exists along San Andres Drive feeding northward into the boundary with unincorporated San Diego County.

V. Needs Analysis

This chapter presents an overview of current bicycling demand and barriers in San Diego and estimates potential future demand and benefits that could be realized through implementation of this Plan. Elements of this chapter were used to develop the Plan recommendations. They include:

- **Bicycle Demand Modeling** – raster-based spatial modeling highlights segments of the roadway network with the greatest propensity for bicycle activity compared to other locations in San Diego.
- **Public Input** summarizes public comment collected throughout the planning process to understand current bicyclists' issues and desires.
- **Bicycle Safety and Accident Analysis** presents a summary and analysis of bicycle related collisions and bicycling safety issues.
- **Commute Patterns** summarizes current commute mode split statistics according to the US Census as an indication of current system usage and to establish a baseline with which to measure progress.
- **Trip Reduction and Potential Air Quality Benefits** were estimated to gauge the potential environmental benefits associated with increasing the bicycle mode split through plan implementation.

Assessing needs and potential benefits is instrumental to planning a system that serves the needs of all user groups; and is useful when pursuing competitive funding and attempting to quantify future usage and benefits to justify future expenditures.

Bicycle Demand Modeling

Modeling bicycle demand provides an objective assessment of potential bicycle travel across the city by analyzing population characteristics and elements of the built environment that are strongly correlated with bicycling. This Plan includes demand modeling on two geographic scales of travel, intra-community travel or "within-community" travel and inter-community or "between-community" travel. The former consists of shorter trips that are taken within a neighborhood or community area; the later refers to longer trips that are taken between communities or neighborhoods. Demand was modeled at these two scales because there is variation in the strength of factors believed to attract or generate bicycle trips for shorter verses longer trips. This demand analysis, along with existing plans and public input, was used to assist in identifying locations in San Diego where investments in bicycle facilities would be most beneficial in terms of the current propensity for bicycle activity. The following sections summarize the demand modeling process and results.

Within-Community Bicycling Demands (Intra-Community)

The within-community bicycle demand model integrates two sub-models, the bicycle trip attractor and bicycle trip generator models, which are designed to identify areas with greater propensity for bicycling due to the intensity of land uses likely to attract or generate a relatively shorter bicycle trip. The variables employed in these sub-models and their corresponding point systems were presented to and discussed extensively with the Plan's Project Working Group. National and local bicycle travel behavior surveys were also consulted to inform the selection of input variables and their associated points. The City uses similar raster-based spatial modeling approaches in multiple other planning efforts including their 2008 General Plan Update Village Propensity Model and the on-going pedestrian master plan priority modeling.

Bicycle Attractor Model

Table 5.1 presents the bicycle trip attractor model inputs that consist of land uses considered to have a higher potential for attracting bicycle trips, such as schools, beaches, parks and retail centers. The model inputs, their respective points, and the distance-based weights applied to the inputs are also shown in Table 5.1. **Figure 5-1** displays the location of bicycle trip attracting land uses across San Diego. The bicycle trip attracting land uses were buffered by varying distances (as shown in Table 5.1) and then assigned a score.

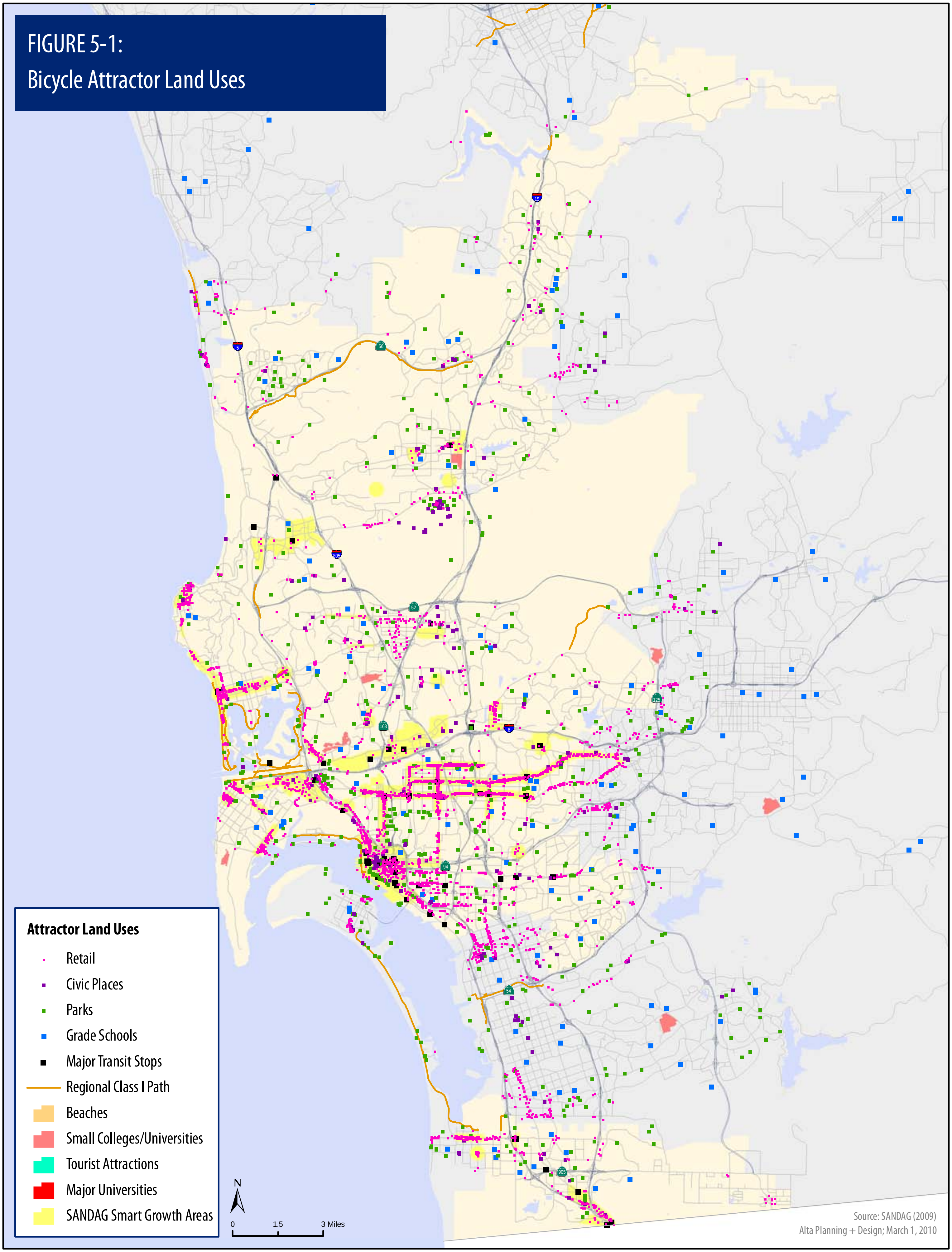
Table 5-1: Bicycle Attractor Input Variables and Scores

Bicycling Attractors	Points	Weights	Score
Major Universities (SDSU and UCSD)	4	1	4
Beaches & Coastal Parks	4		4
Tourist Attractions	4		4
Transit (> 1,000 passengers per day)	4		4
Regional Class I Bikewa	4		4
Non-Coastal Parks & Recreation	3		3
Small Colleges & Universities	3		3
Smart Growth Opportunity Areas	2		2
Retail Facilities*	1		1
High, Middle, & Elementary Schools	1		1
Neighborhood Civic Facilities	1		1
Weighting Values Based on Distance to Attractor			
Within ½ mile	1.50	1	1.50
Between ½ and 1 mile	1.00		1.00
Between 1 and 1 ½ mile	0.75		0.75
Between 1 ½ and 2 miles	0.50		0.50
Between 2 and 3 miles	0.25		0.25

Source: Alta Planning + Design, February 2010

Note:
**Only a single distance-based ranking was applied to Retail Facilities. The area outside of one-quarter mile of retail uses was not included as potential bicycle trip-attracting locations.*

FIGURE 5-1:
Bicycle Attractor Land Uses



Source: SANDAG (2009)
Alta Planning + Design; March 1, 2010

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Land use buffers were generated using ArcView's Network Analyst software resulting in buffers of varying distance around the bicycle trip attracting land uses along the roadway network. Freeways, and other roadways where bicycling is prohibited, were removed from the roads shapefile before generating the street network buffers. **Figure 5-2** displays the raster composite for the attractor model.

Bicycle Generator Model

Table 5.2 displays the bicycle trip generator model inputs including total population and employment densities, and the density of sub-populations believed to have potentially higher rates of bicycling, such as households without a vehicle and bicycle commuters.

Table 5.2: Bicycle Generator Input Variables and Scores

Bicycling Generators	Points	Weights	Score
Population Density (persons per census block)			
> 40	3	2	6
25 - 40	2		4
< 25	1		2
Employment Density (employees per traffic analysis zone)			
> 15	3	2	6
5 - 15	2		4
< 5	1		2
Zero-Vehicle Households (percent of households by census block group)			
≥ 25	3	2	6
15 – 24.99	2		4
5 – 14.99	1		2
Bicycling Commuters (percent of commuters by census block group)			
≥ 4	3	2	6
2 - 3.99	2		4
1 – 1.99	1		2
Walk and Transit Commuters(percent of commuters by census block group)			
≥ 25	3	2	6
15 – 24.99	2		4
5 – 14.99	1		2

Source: Alta Planning + Design, February 2010

Figures 5-3 through **5-7** display the five bicycle trip generator model inputs across the city of San Diego. **Figure 5-8** displays the bicycle generator composite model, which integrates each of the five input variables in a composite raster grid using the point system presented in Table 5.2.

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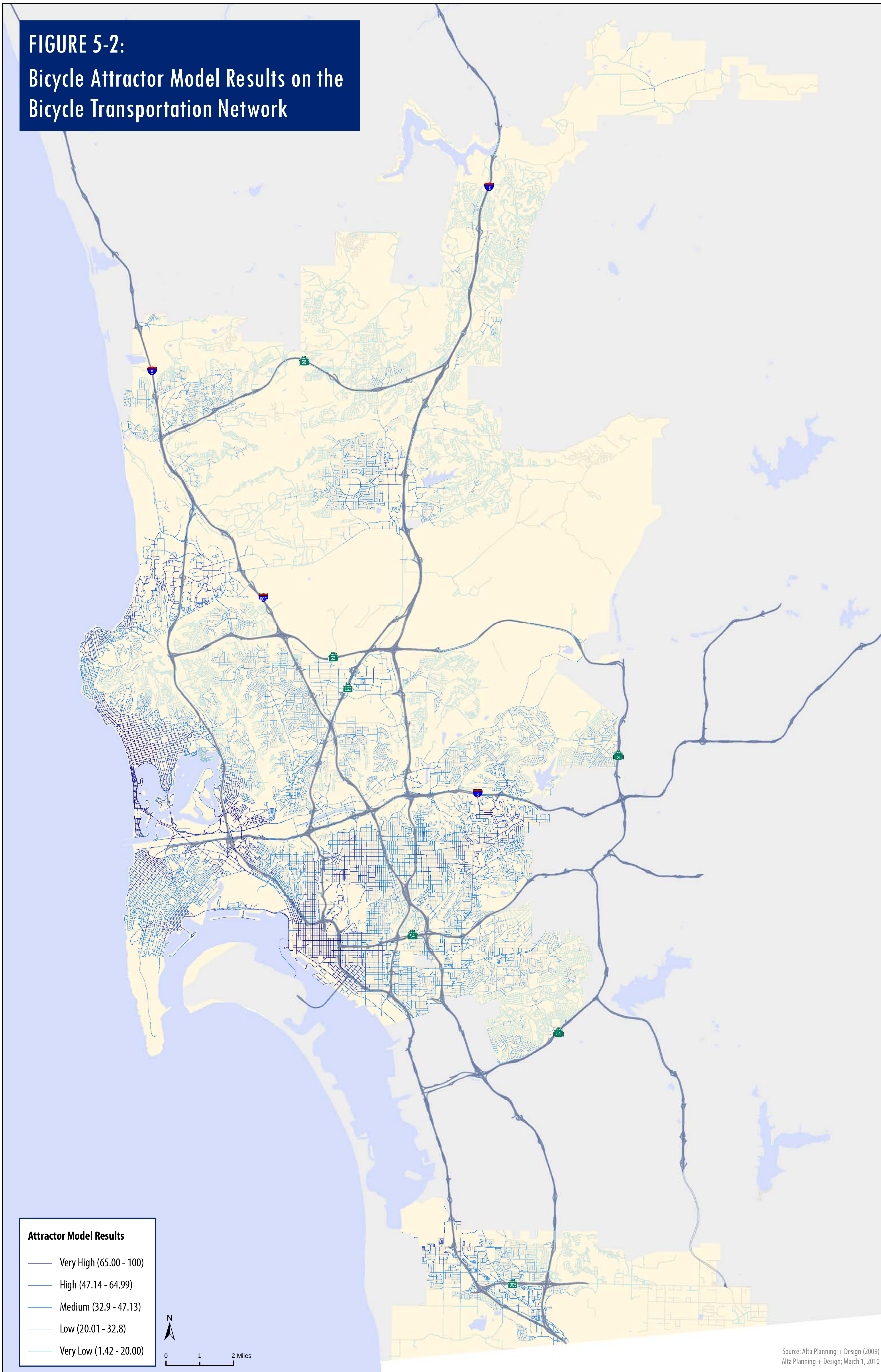
FIGURE 5-2:
Bicycle Attractor Model Results on the Bicycle Transportation Network



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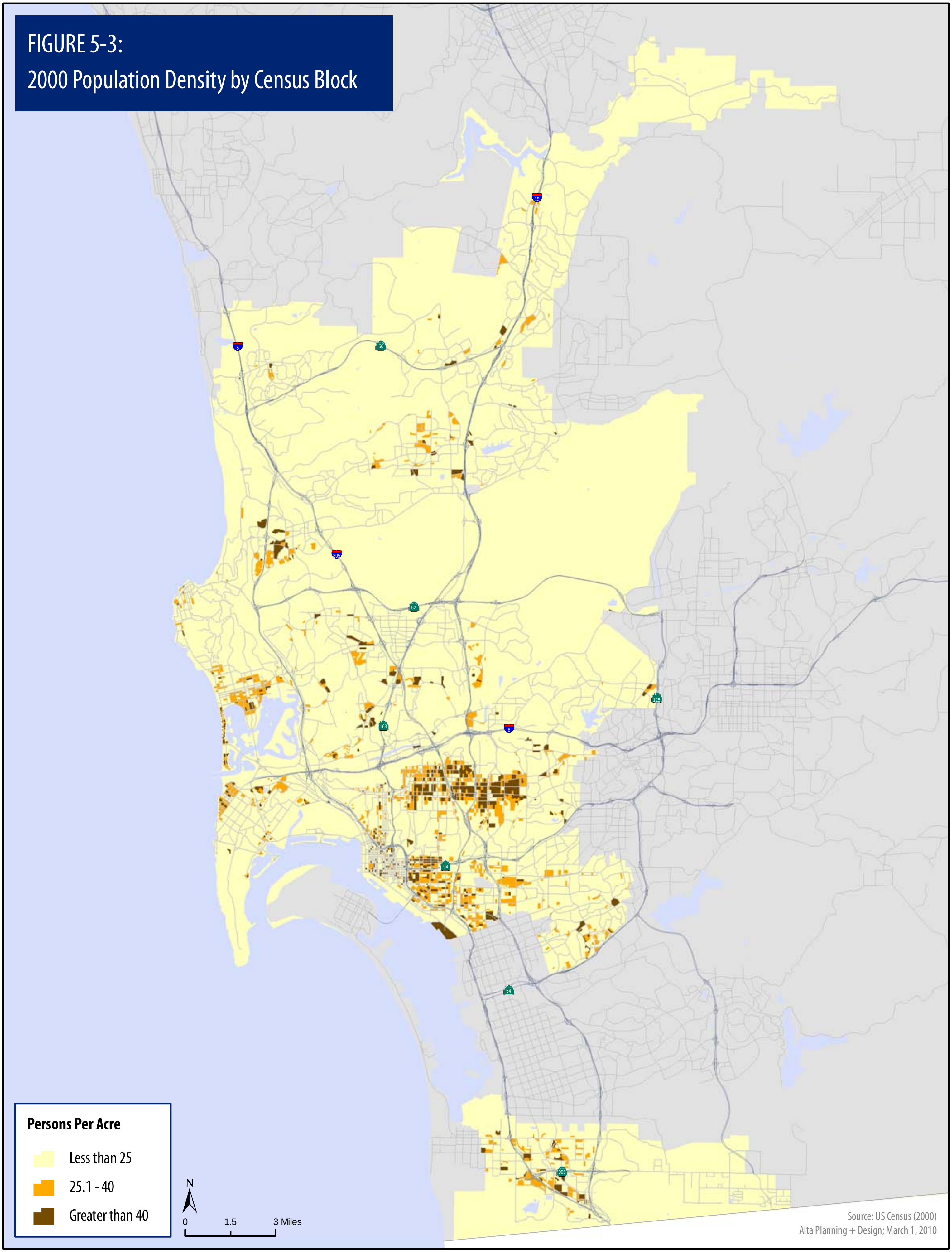

FIGURE 5-3:
2000 Population Density by Census Block
Persons Per Acre
Less than 25
25.1 - 40
Greater than 40
N
0
1.5
3 Miles
Source: US Census (2000)
Alta Planning + Design; March 1, 2010

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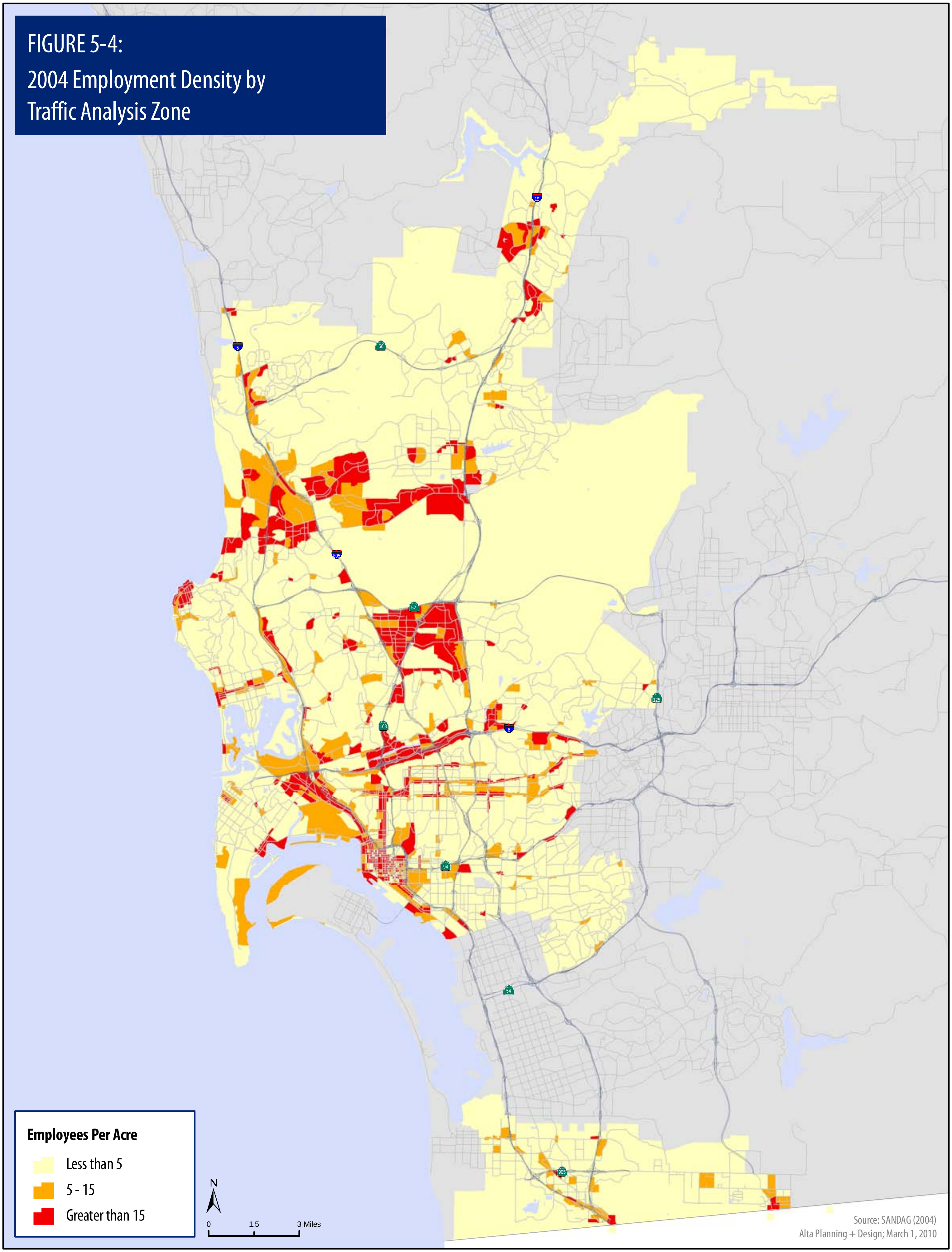
FIGURE 5-4:
2004 Employment Density by Traffic Analysis Zone



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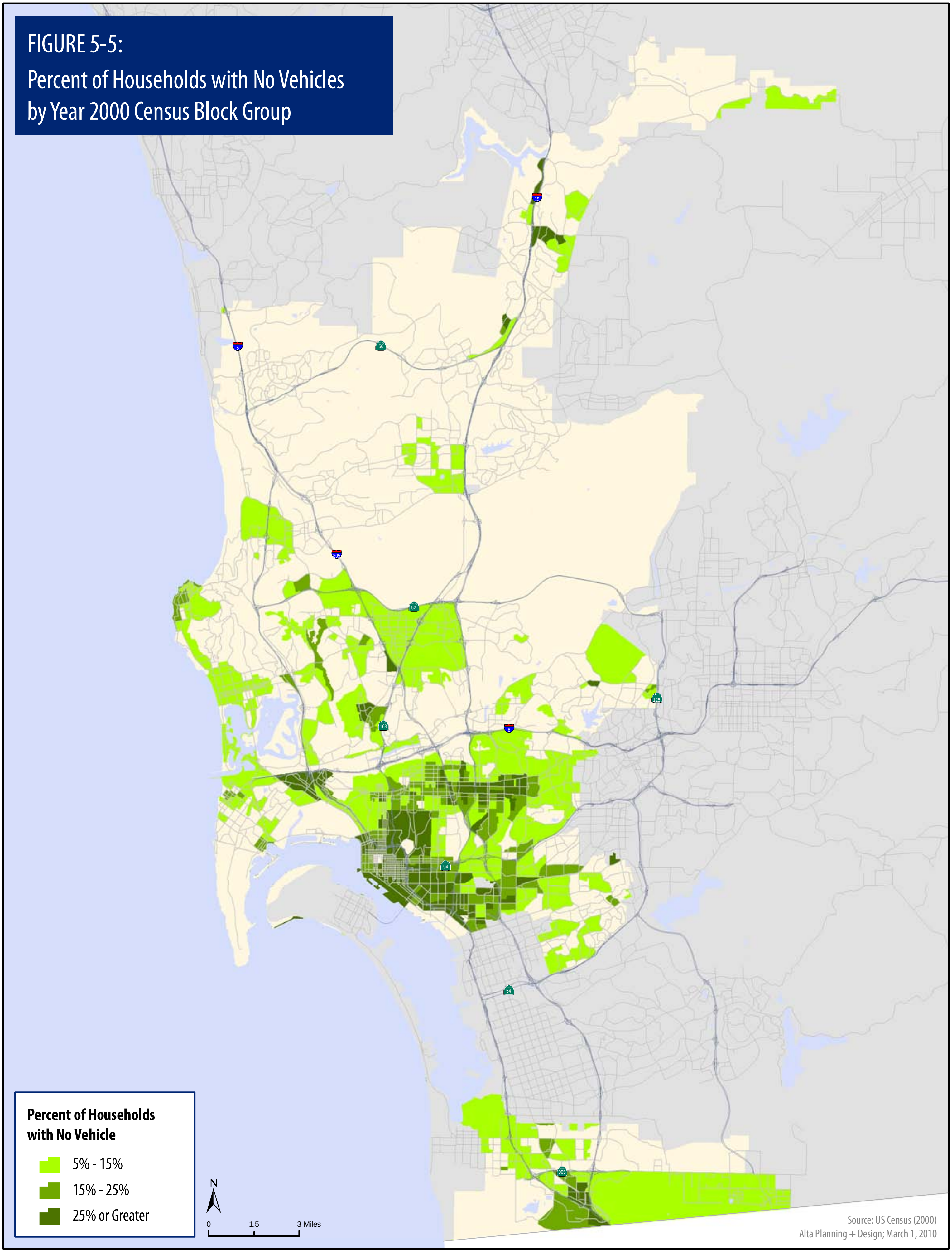
FIGURE 5-5:
Percent of Households with No Vehicles by Year 2000 Census Block Group
Percent of Households with No Vehicle
5% - 15%
15% - 25%
25% or Greater
N
0
1.5
3 Miles
Source: US Census (2000)
Alta Planning + Design; March 1, 2010

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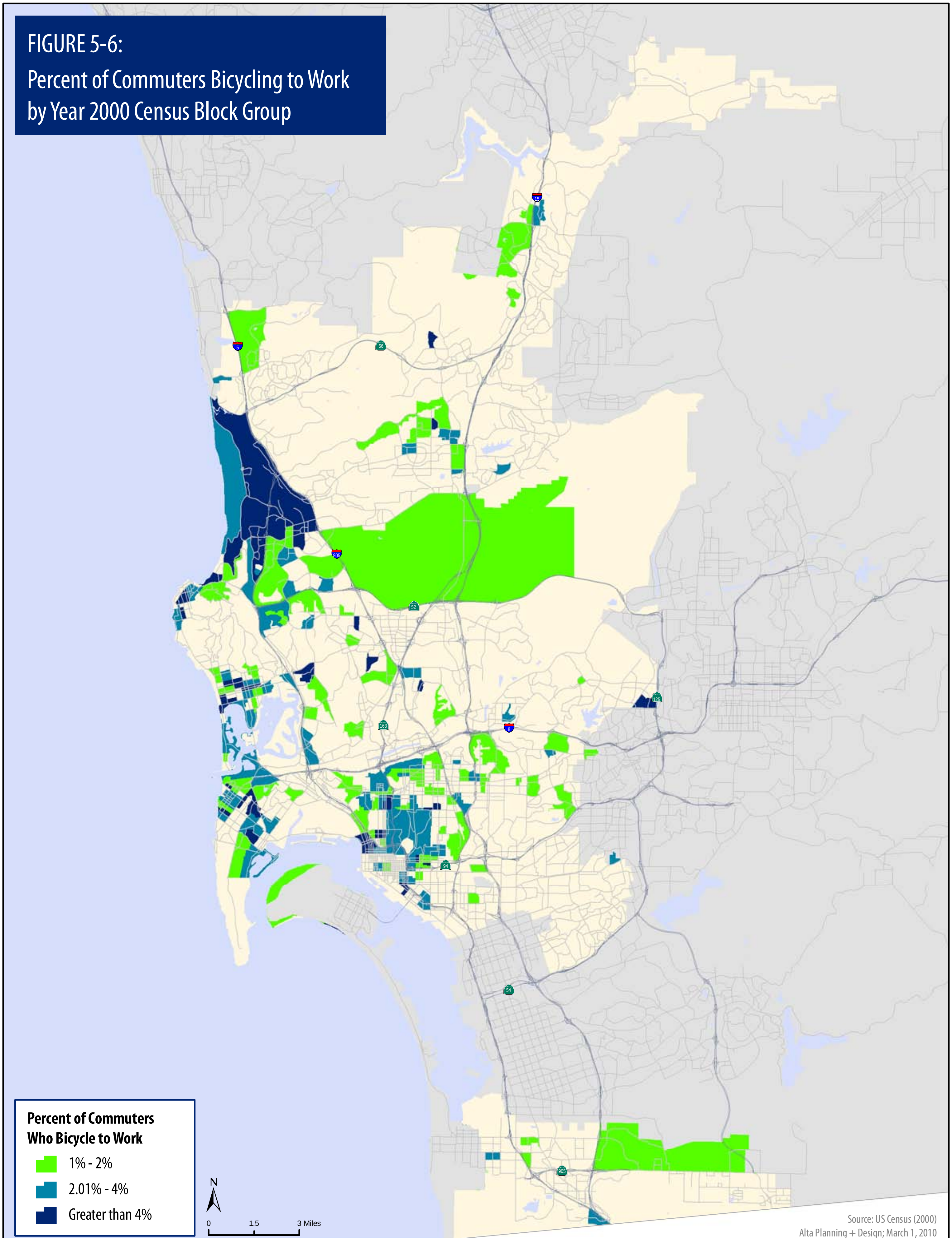
FIGURE 5-6:
Percent of Commuters Bicycling to Work by Year 2000 Census Block Group



Source: US Census (2000)
Alta Planning + Design; March 1, 2010

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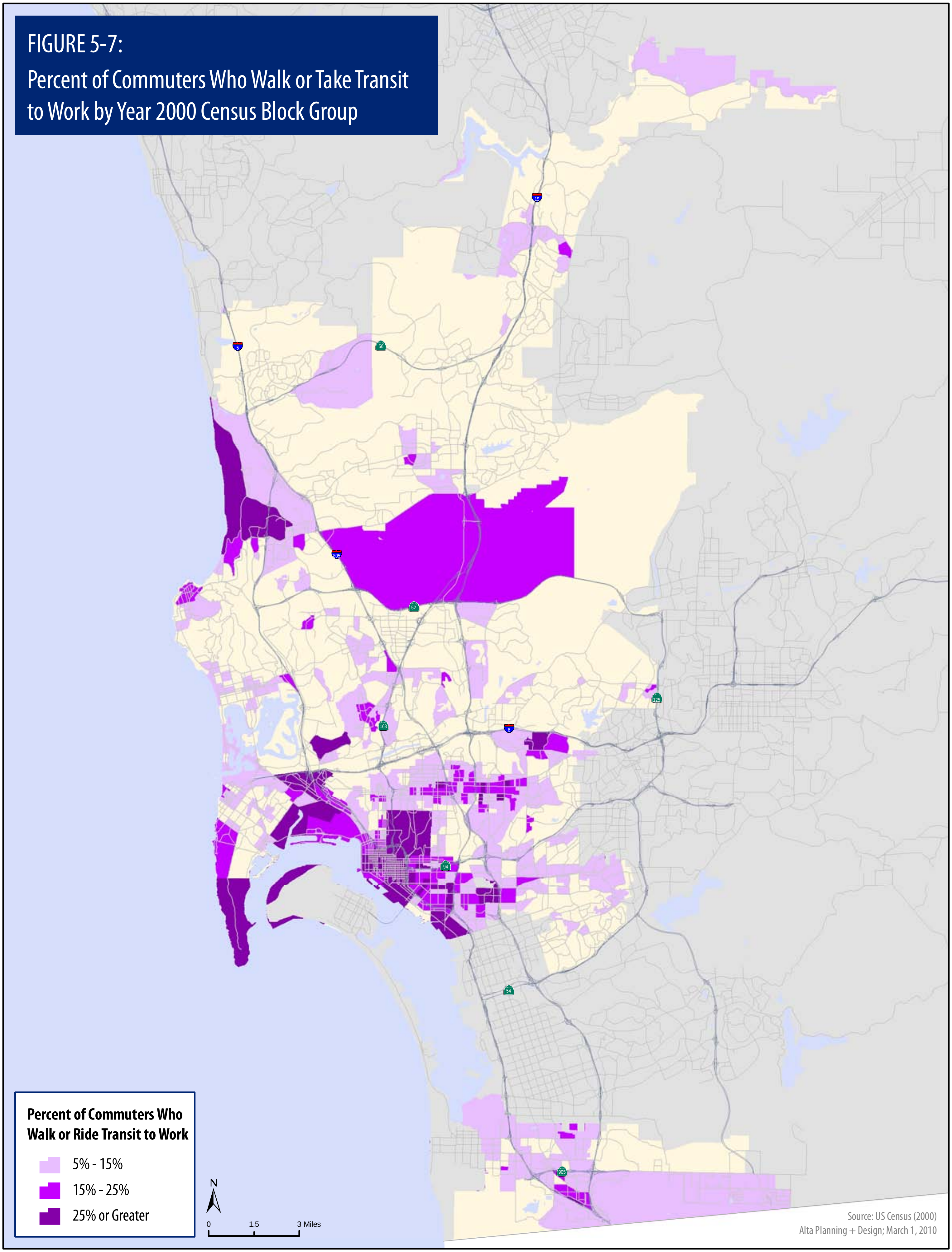

FIGURE 5-7:
Percent of Commuters Who Walk or Take Transit to Work by Year 2000 Census Block Group

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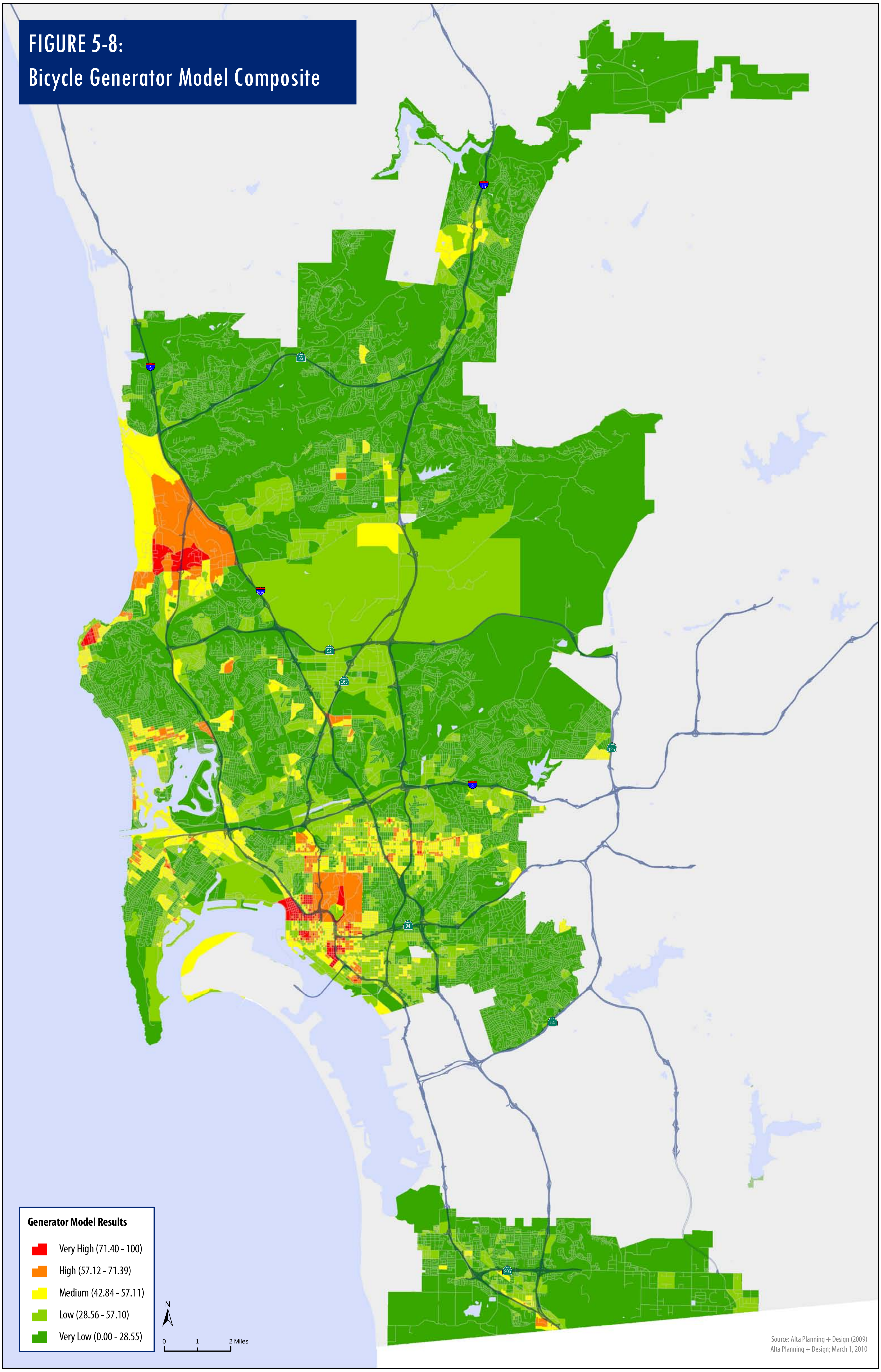
FIGURE 5-8:
Bicycle Generator Model Composite



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Identifying High Within-Community Bicycle Demands (Intra-Community)

Intra-community bicycle demands were then estimated by summing the bicycle attractor and generator scores associated with each segment of the bicycle transportation network and selecting the highest 50% scoring segments. The top 50% of the bicycle transportation segments were assembled into high bicycle demand zones.

Figure 5-9 displays the results of the combined attractor and generator models on the bicycle transportation network, along with the top 50% scoring segments used to form the high demand intra-community bicycle zones. Key intra-community bicycle demand zones include the University Town Center and UCSD areas, La Jolla, Pacific Beach, Mission Bay, Downtown, Mid-City and San Diego State areas.

In order to focus these results on high intra-community bicycle demand corridors, only Circulation Element roadways within the high intra-community demand zones were maintained as final scored output from the intra-community demand modeling effort. By focusing on the Circulation Element roadways, this assessment is ensured of capturing important local bicycling destinations. **Figure 5-10** displays Circulation Element roadway segments within high intra-community demand zones, along with their final intra-community demand scores.

Between-Community Bicycling Demands (Inter-Community)

This section presents the methodology and results of a network-based bicycle demand assessment intended to capture the demand for longer bicycling trips across the city of San Diego. A gravity model framework was employed to estimate network-based bicycle demands, incorporating consideration of both the intensity of activity centers and the distances between them.

The gravity model, as applied in the field of long-range transportation planning, posits that activity centers with higher intensity land uses will generate higher demand for travel between them than activity centers with lower intensity land uses. It also posits that activity centers in closer proximity will generate higher demand for travel between them than activity centers farther apart. In sum, intensity of land uses encourages interactions, while distance discourages interactions. This simple theory of human behavior within an urban region has been widely applied to understand and predict travel behavior and the demand for interactions across a metropolitan region.

Application of the gravity model requires the development of activity center and network systems. The activity centers should describe the amount and intensity land uses, while the network system should characterize distances and travel paths between the activity centers. For the purposes of this project, SANDAG's Smart Growth Opportunity Areas (SGOAs) and the City of San Diego's high Village Propensity areas were used as the basis for the activity center system between which travel demand would be estimated. In terms of the network system, ArcView's Network Analyst was employed to develop two shortest path networks between all SGOAs – one along the bicycle transportation network and the other along the network of existing and proposed (2002) bicycle facilities. The purpose for conducting two separate shortest path assessments is to capture the varying preferences of

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FIGURE 5-9:
High Intra-Community Bicycle Demand Zones

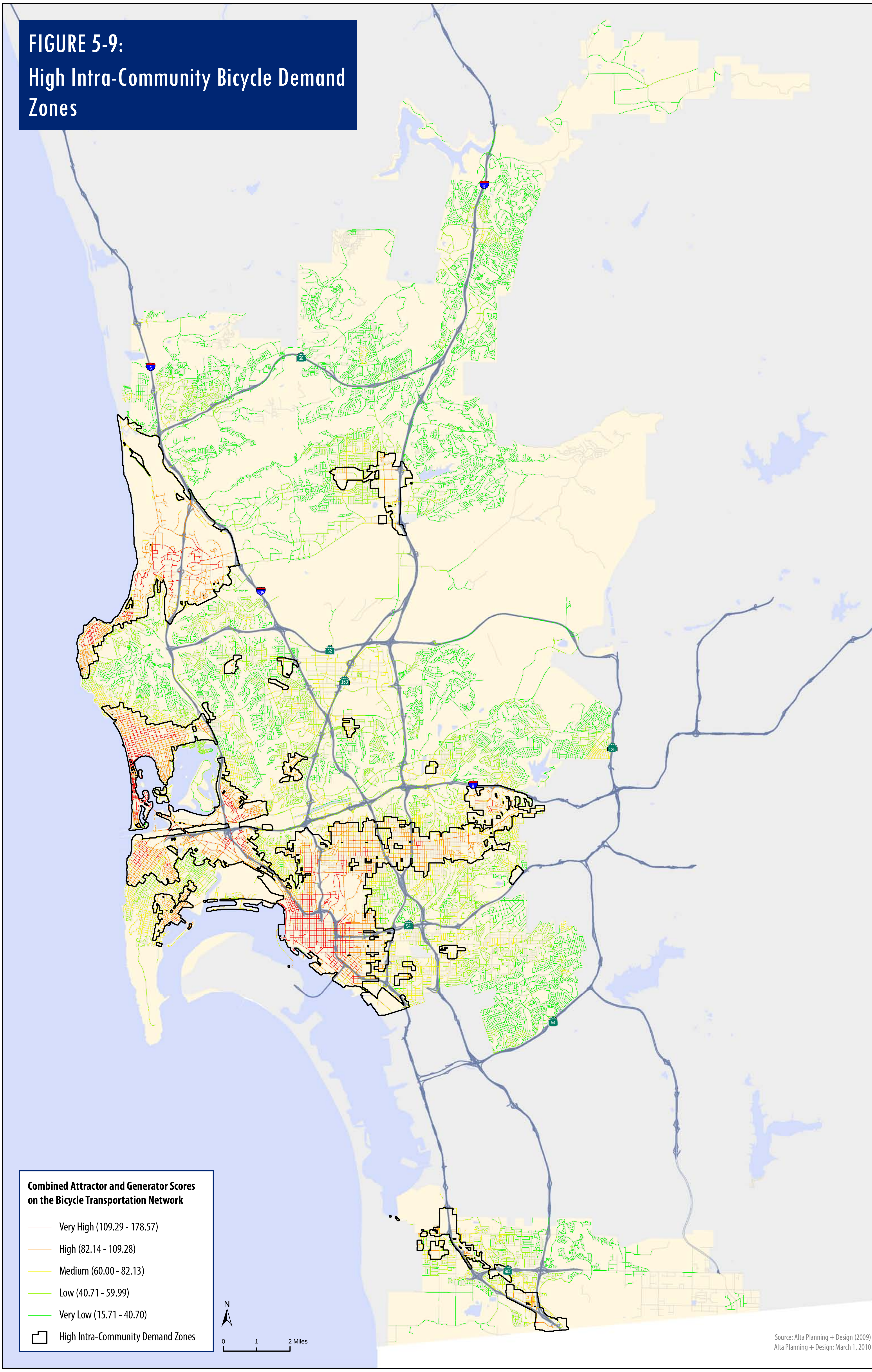

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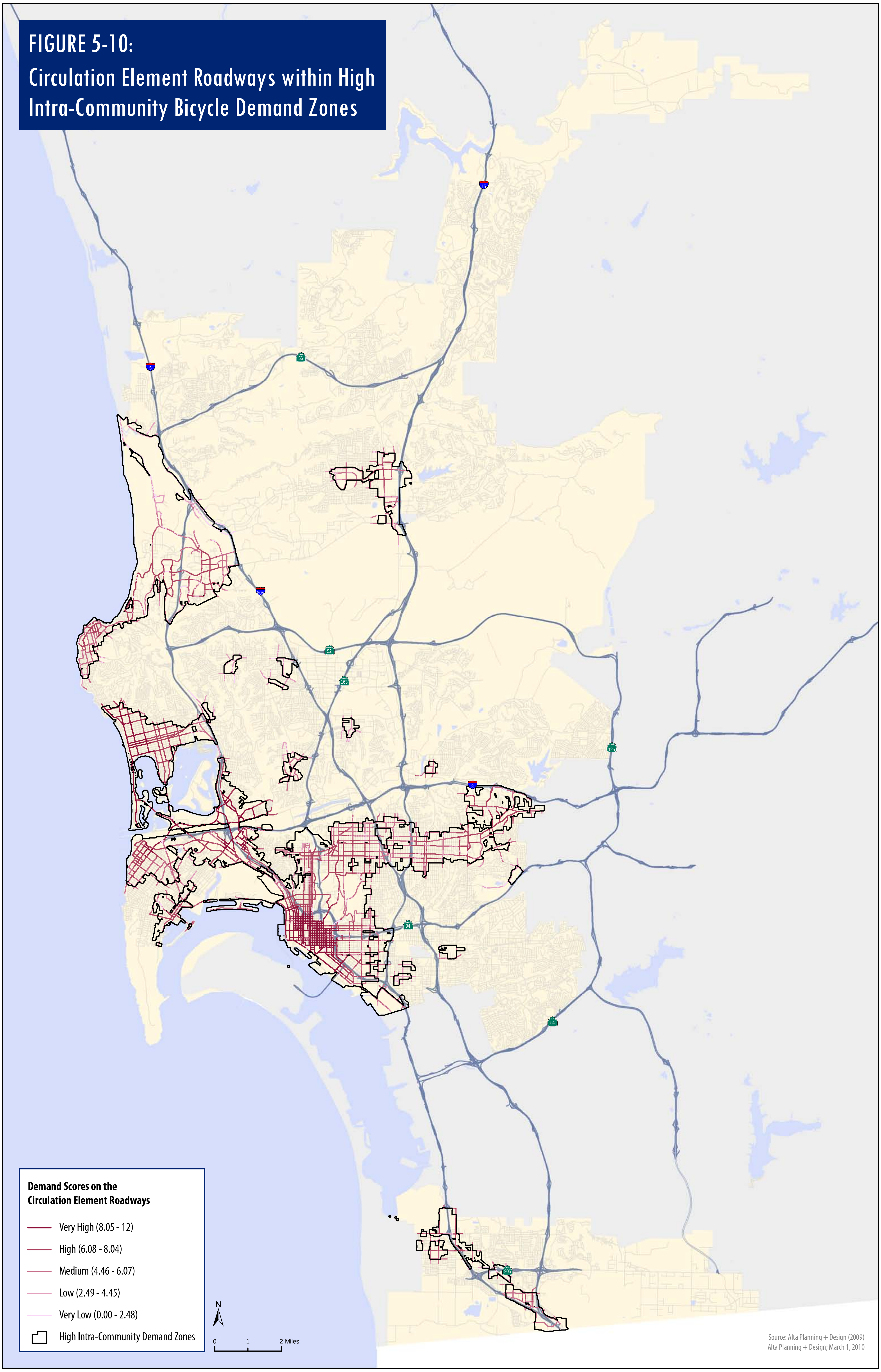
FIGURE 5-10:
Circulation Element Roadways within High Intra-Community Bicycle Demand Zones



Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010

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bicyclists, including those who prefer taking the most direct route between origins and destinations, and those who prefer routes with bicycle facility.

Table 5.3 describes the hierarchy and key characteristics of SANDAG's SGOAs, which were used as the basis for activity centers systems in the inter-community demand analysis. **Figure 5-11** displays the activity centers system, along with the two shortest path network systems developed for the inter-community demand analysis.

Table 5.3: SANDAG's Smart Growth Opportunity Area (SGOA) Typologies

Smart Growth Place Type	Minimum Residential Target	Minimum Employment Target	Minimum Transit Service Characteristics
Metropolitan Center	75 du/ac	80 emp/ac	Regional Services
Urban Center	40 du/ac	50 emp/ac	Light Rail/Rapid Bus
Town Center	20 du/ac	30 emp/ac	Light Rail/Rapid Bus
Community Center	20 du/ac	N/A	High Frequency Local Bus within Transit Priority Areas based on the Urban Service Boundary in the 2007-2011 Coordinated Plan
Rural Village	10.9 du/ac	N/A	N/A
Special Use Center	Optional	45 emp/ac	Light Rail/Rapid Bus
Mixed-Use Transit Corridor	25 du/ac	N/A	High Frequency Local Bus

Source: Smart Growth Concept Site Descriptions June 6, 2008 (SANDAG)

High Village Propensity areas are not explicitly included in Table 5.3, since in almost all cases, they overlap with an SGOA. In addition, using SGOAs was advantageous since they provide a justifiable activity centers system outside the boundary of the city of San Diego.

Interaction Levels between Activity Centers

Table 5.4 shows the points system developed for ranking interactions between various origin-destination pairs by activity center type. As shown, the activity centers interaction score ranges from 0 to 6. Interactions between a Metro and Urban Center for example would score 6 points, while interaction between a Town Center and a Community Center would score 1 point.

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FIGURE 5-11:
Activity Center and Network Systems Developed for the Inter-Community Bicycle Demand Analysis

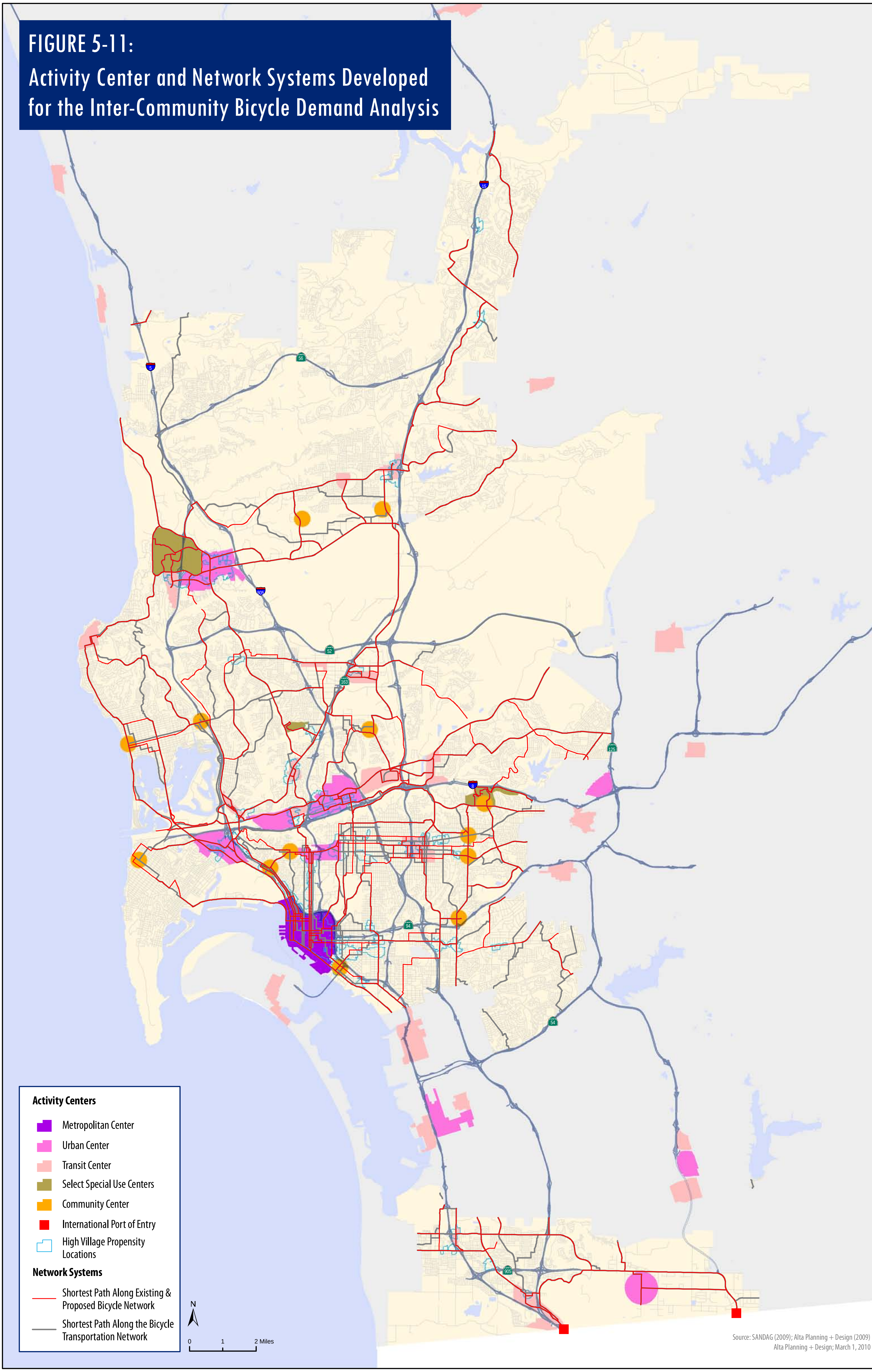

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Table 5.4: Activity Centers Interaction Scores (TO / FROM Matrix)

	Metro Centers[1]	Urban Centers[2]	Town Centers[3]	Large Employment Centers[4]	Community Centers[5]
Metro Center	6	6	5	4	3
Urban Centers	6	5	4	3	2
Town Centers	5	4	3	2	1
Large Employment Centers	4	3	2	1	1
Community Centers	3	2	1	1	1

Source: Alta Planning + Design, February 2010

Notes:

1. *The San Ysidro Port of Entry is given the same demand score as a Metro Center.*
2. *SDSU and UCSD are given the same demand scores as Urban Centers.*
3. *The Otay Mesa Port of Entry and Mesa College were given the same demand scores as Town Centers.*
4. *Large Employment Centers not currently included as SGOAs were included in this analysis.*
5. *Only existing Community Centers were included in this analysis. No proposed Community Centers were included, as were for the other activity center types.*

Distance Decay Factor

A distance decay factor was developed to account for the fact that activity centers in closer proximity should generate more interaction; and likewise, those farther apart would experience less interaction. **Table 5.5** displays the equations that were used to calculate distance decay factors for every shortest path connection between all activity centers.

Table 5.5: Distance Decay Factor Equations

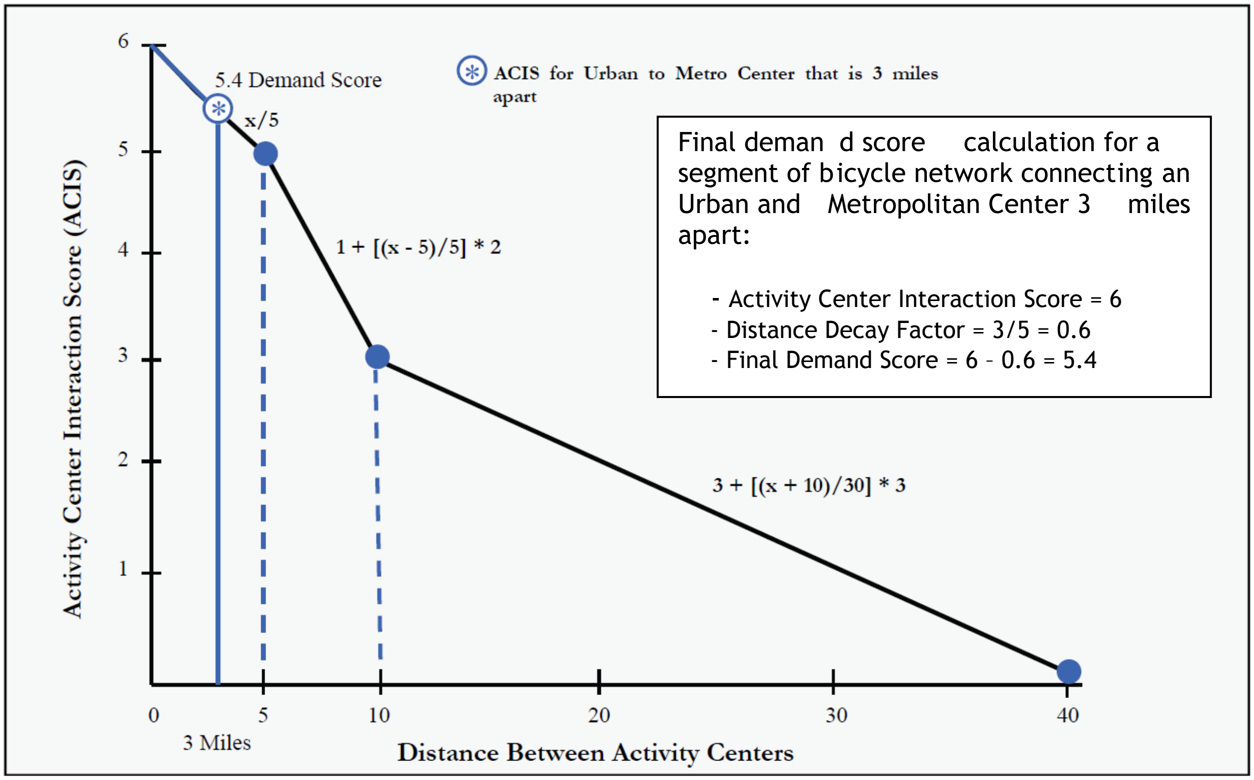
Length of Shortest Path (x)	Distance Decay Equation
x is between 0 and 5 Miles	x / 5
x is between 5 and 10 Miles	1 + [(x – 5) / 5] * 2
x is between 10 and 40 Miles	3 + [(x – 10) / 30] * 3

Source: Alta Planning + Design, February 2010

The distance decay factors range from 0 to 6 and were developed to reflect higher demands for shorter trips and lower demands for longer trips. The final demand ranking along the bicycle network is calculated by subtracting the distance decay factor from the activity center interaction score, as displayed in Table 5.4.

Figure 5-12 illustrates the application of the distance decay equations, as well as a final demand score calculation for a segment of bicycle network connecting between Uptown and Downtown San Diego.

Figure 5-12: Distance Decay Factors and Sample Calculation



Source: Alta Planning + Design, February 2010

The activity center interaction score between Uptown (an Urban Center) and Downtown (a Metro Center) would be 6 based upon the matrix presented in Table 5.4. Assuming Uptown and Downtown are approximately 3 miles apart, the distance decay factor would be 0.6 (i.e. 3 ÷ 5 = 0.6). Subtracting the distance decay factor from the activity centers interaction scores gives a final demand score of 5.4.

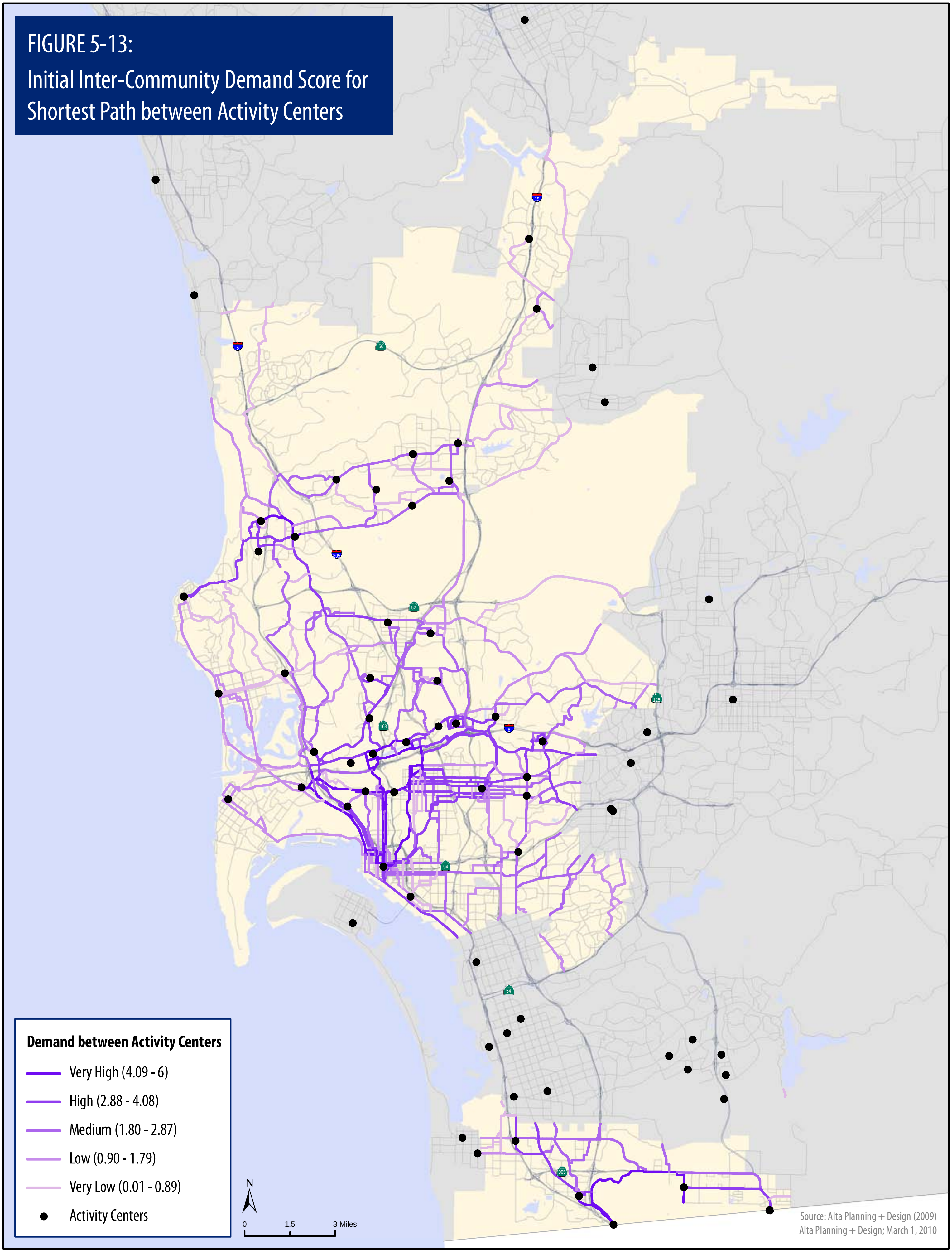
Identifying High Between-Community Bicycle Demand (Inter-Community)

An initial inter-community bicycle demand score was calculated for the shortest path between every activity center, incorporating consideration of both the type of activity center at the origin-destination and the distance between the respective activity centers. **Figure 5-13** displays the results of this analysis.

In addition to assigning a demand score for the shortest path, consideration was also given to the frequency with which each segment of each shortest path served as a connection between any given activity center origin and destination pair. The frequency-related demand score is shown in **Figure 5-14.**

The initial inter-community demand score and the frequency-related inter-community demand score were summed to calculate a final inter-community demand score. The results of the final inter-community demand analysis are presented in **Figure 5-15**. The range of final inter-community demand scores is from 0 to 12.

FIGURE 5-13:
Initial Inter-Community Demand Score for Shortest Path between Activity Centers



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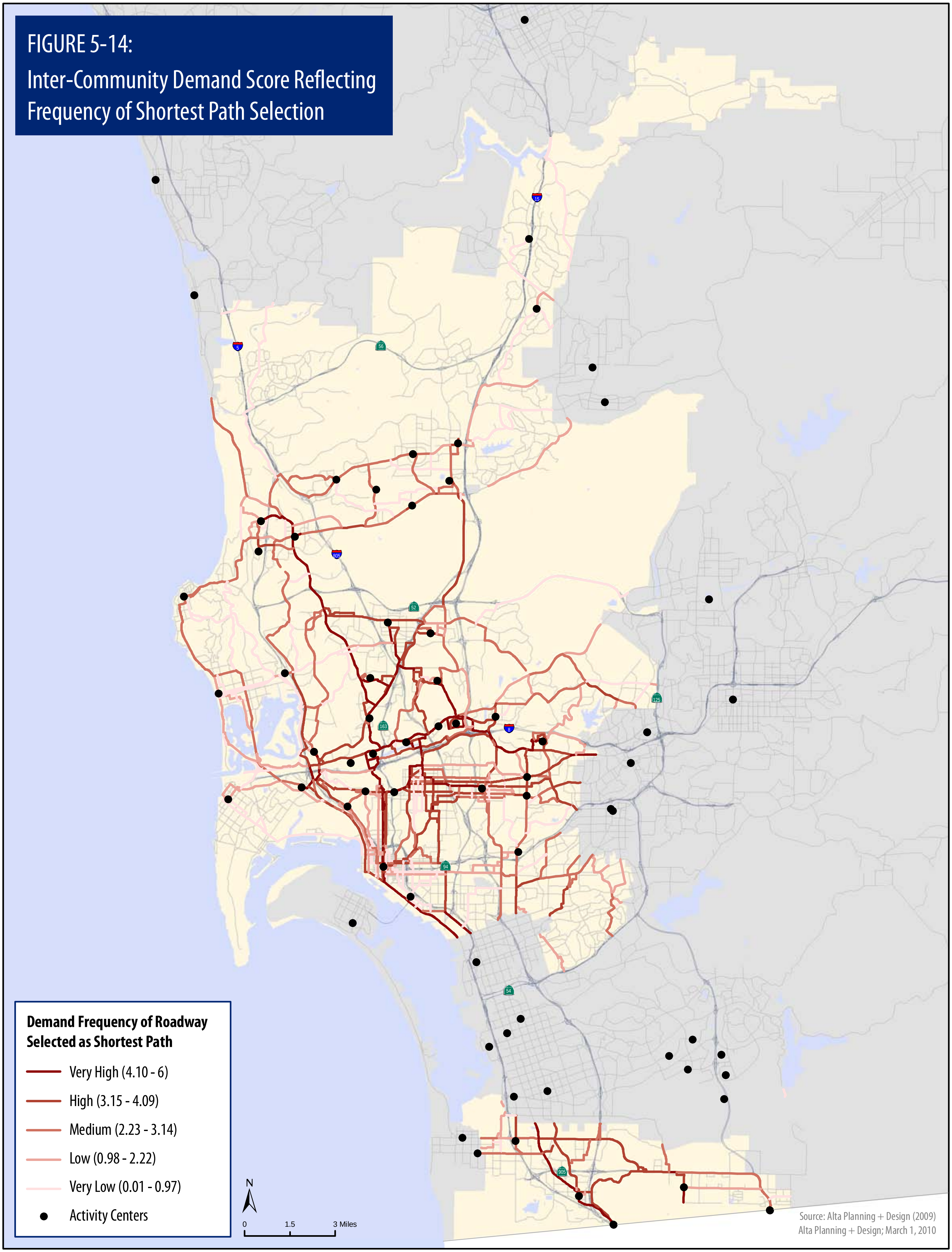
FIGURE 5-14:
Inter-Community Demand Score Reflecting Frequency of Shortest Path Selection
Demand Frequency of Roadway Selected as Shortest Path
Very High (4.10 - 6)
High (3.15 - 4.09)
Medium (2.23 - 3.14)
Low (0.98 - 2.22)
Very Low (0.01 - 0.97)
Activity Centers
N
0
1.5
3 Miles
15
5
56
805
52
163
8
125
94
54
905
Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010

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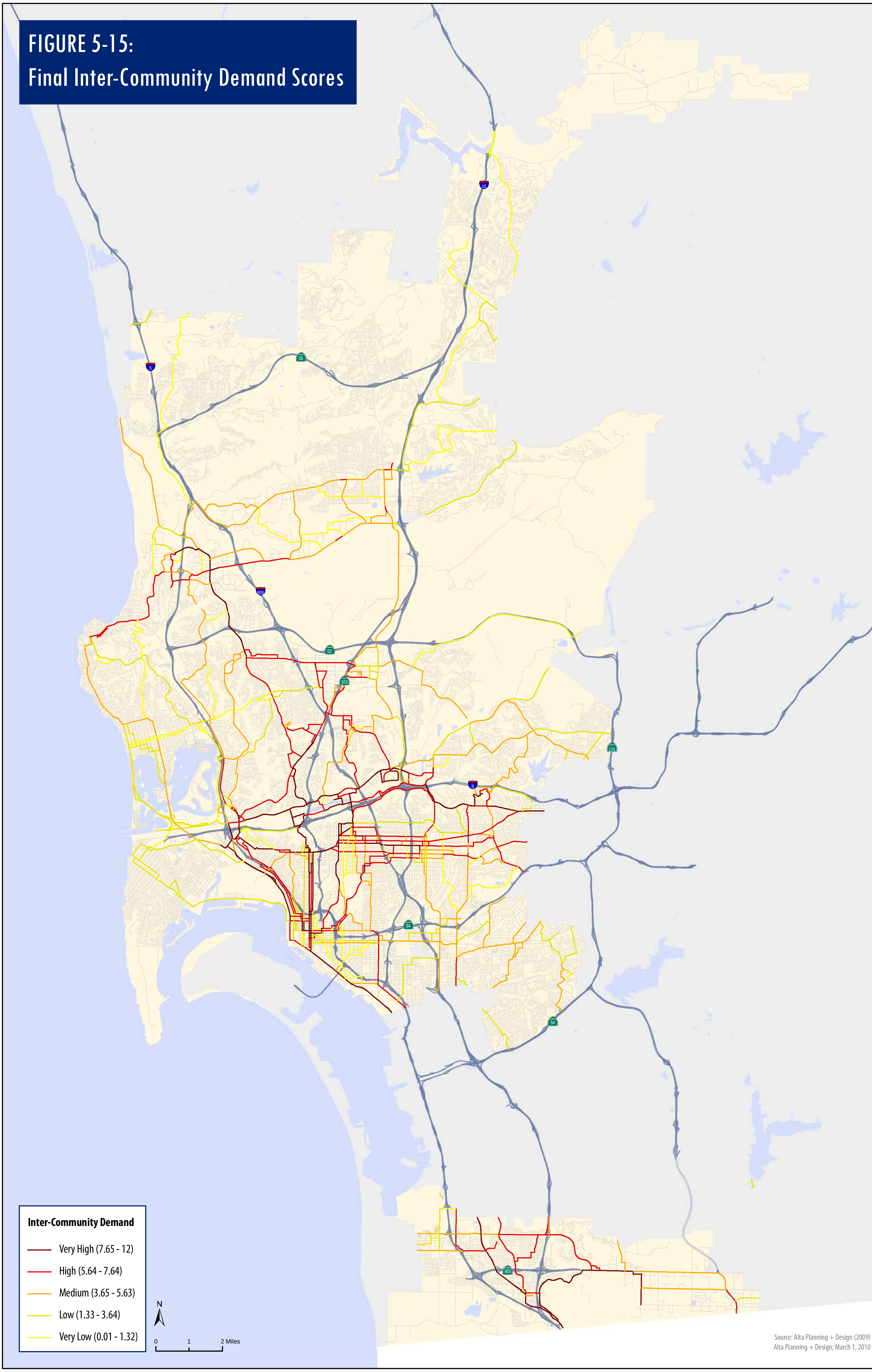
FIGURE 5-15:
Final Inter-Community Demand Scores



Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010

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High Combined Bicycling Demand Zones

The last step in the bicycle demand analysis involves combining the intra-community demand scores (Figure 5-9) and the inter-community demand scores (Figure 5-15). The final bicycle demand score, incorporating both intra and inter community travel, ranges from 0 to 24 and is mapped across San Diego in **Figure 5-16**. This analysis identifies roadway segments with the greatest propensity for bicycling activity taking into consideration demands for shorter and longer trips.

Public Input

This section summarizes the public outreach effort undertaken as a part of the planning process, and provides a synopsis of San Diego community members' bicycle riding behaviors, attitudes, issues and recommendations for types of improvements. The input obtained through this extensive outreach effort was integrated into the identification and prioritization of infrastructure and program recommendations presented in Chapters 6 and 7.

The public involvement strategy entailed convening a Project Working Group (PWG), presenting to community and bicycling organizations, facilitating a public workshop, and collecting input on a continual basis via the City's bicycle planning website. The fact that the Plan's development has overlapped with the San Diego Regional Bicycle Plan also enabled the City to utilize the substantial amount of input collected from San Diego residents via the regional planning process. As of October 2008, the San Diego Regional Bicycle Plan survey database contained 985 surveys completed by city of San Diego residents (59 percent of total respondents) according to the residential information provided by survey respondents.

The PWG met five times throughout the planning process to advise the City on the Plan's development. The purpose of the PWG meetings was to present work products to the group and ask PWG members to provide substantive input and direction for future project tasks. In particular, the PWG was instrumental in refining the prioritization process presented in Chapter 6.

Another facet of the public outreach process involved attending a combination of bicycle organization and community planning group meetings focused in areas of the city that showed the weakest representation within the Regional Bicycle Plan public involvement efforts. To encourage participation from San Diego residents who had not participated in the Regional Bicycle Plan effort, the zip codes of San Diego survey respondents were tabulated and the project team pursued attending all community planning area meetings where representation was low. The project team attended the following meetings:

- Kearny Mesa Community Planning Group Meeting
- Southeastern San Diego Planning Committee Meeting
- San Ysidro Community Planning Group Meeting
- Otay Mesa / Nestor Community Planning Committee Meeting

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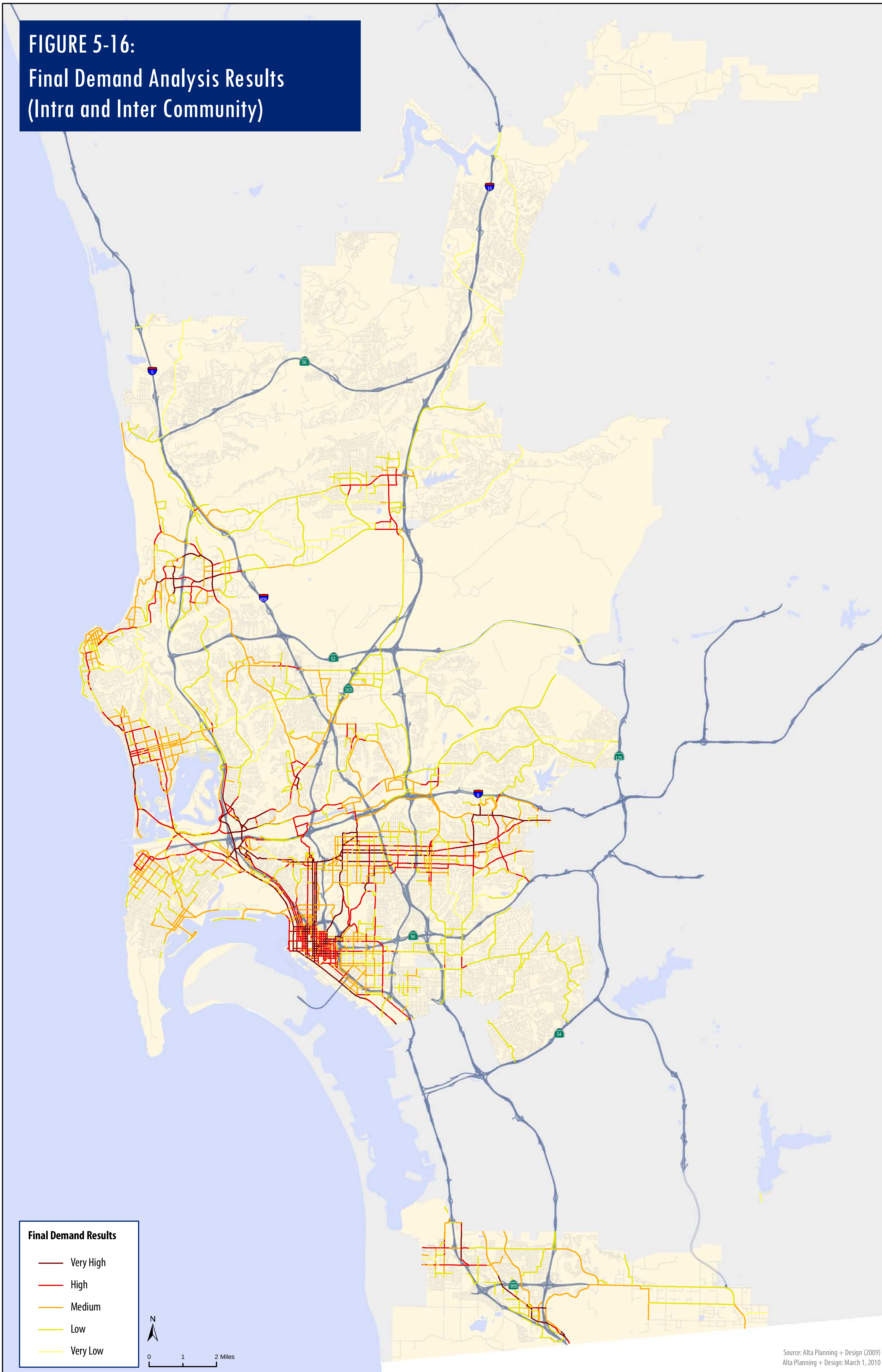
FIGURE 5-16: Final Demand Analysis Results (Intra and Inter Community)



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- Barrio Logan Community Plan Update Workshop
- San Diego Cyclo-Vets Monthly Meeting
- San Diego County Bicycle Coalition Board Meeting

At these seven meetings, the team presented an overview of the Plan project, and distributed and collected bicycle surveys to record community input. The survey distributed during these events was identical to the online survey accessible via the City's bicycle planning website. This allowed the project team to combine the online survey responses with the responses collected during community meetings. This surveying effort resulted in the collection of a total of 574 surveys as of March 31, 2009, including 513 online surveys and 61 hard copy surveys collected during community meetings. These 574 surveys, along with the 985 surveys collected via the regional planning effort, fed directly into the Plan recommendations. The information obtained via the Regional Bicycle Plan survey is presented in **Appendix B**. The 574 surveys collected through this planning process are summarized in the following section.

Bicycle Survey Results

The bicycle survey consisted of questions about bicyclists' behaviors, preferences, and deficiencies in the bicycling environment.

Table 5-6 shows that, when asked about their motivations for bicycling, 89.8% of survey participants responded that they bicycle for exercise and health reasons, followed by 80.7% responding that they bicycle for enjoyment, and 67.6% bicycle for environmental and/or social reasons.

Table 5-6: Survey Respondents' Motivations for Bicycling

Reason	Percent of Responses
For exercise / health reasons	89.8 %
For enjoyment	80.7 %
For environmental and/or social reasons	67.6 %
To get to work	62.7 %
For shopping / errands	44.0 %
To get to school	29.2 %
To get to transit	20.8 %
Other	5.3 %
I don't bike	2.1 %

Source: Alta Planning + Design, March 2009

Respondents' reasons for bicycling summarized in Table 5-6 are not mutually exclusive. For example, bicyclists may be inclined to bike to work for the health benefits associated with biking and also because they enjoy bicycling. Thus, to better understand what types of bicyclists responded to the survey, respondents were also asked to indicate if the majority of their trips are utilitarian or recreational in nature. **Table 5-7** shows that the majority of trips taken by respondents are utilitarian.

Table 5-7: Respondents' Recreational verses Utilitarian Trips

Trip Type	Percent of Responses
Utilitarian	64.0 %
Recreational	36.0 %
Total	100 %

Source: Alta Planning + Design, March 2009

Table 5-8 shows that respondents' most common average riding distance for a one-way trip is 3 to 5 miles, which is consistent with national averages.

Table 5-8: Survey Respondents' Average Bicycling Distances (one-way)

Miles	Percent of Responses
Under 2 miles	17.2 %
3 – 5 miles	26.4 %
6 – 10 miles	24.6 %
11 – 24 miles	21.0 %
25 miles and above	10.8 %
Total	100 %

Source: Alta Planning + Design, March 2009

Table 5-9 shows that survey participants overwhelmingly preferred off-street paths, on-street bike lanes, and bike boulevards to signed routes with no dedicated riding space or unpaved routes. This may reflect the desire for more direct routes for commuting (on arterial bike lanes) as well as a desire for more recreational paths for the large number of people who stated that they ride a bicycle primarily for exercise and recreation.

Table 5-9: Survey Respondents' Bikeway Facility Preferences

Bicycle Facility Type	1 Highly Preferred	2	3	4 Not at all Interested
Off-Street Paved Bike Paths	70.6 %	17.7 %	8.2 %	3.5 %
On-Street Bike Lanes	48.8 %	37.6 %	10.7 %	2.9 %
Bike Routes	28.5 %	33.0 %	27.1 %	11.4 %
Unpaved Trails or Dirt Paths	13.4 %	23.2 %	26.7 %	36.7 %
Bicycle Boulevards	45.7 %	29.7 %	17.8 %	6.8 %
Shared Roadways (no bikeway designation or bicycle facility)	7.1 %	9.7 %	22.8 %	60.4 %

Source: Alta Planning + Design, March 2009

Table 5-10 shows that 64.2% of respondents say that adding more bike lanes on major streets would influence their decision to ride, followed closely by more paved (off-street) bike paths and increased maintenance of bikeways.

Table 5-10: Improvements that Would Influence Ridership According to Survey Respondents

Improvement	Very Likely	Likely	Somewhat Likely	Somewhat Unlikely	Unlikely	Very Unlikely
More Bike Lanes on Major Streets	64.2 %	21.0 %	9.2 %	1.9 %	1.5 %	2.2 %
More Paved (off-street) Bike Paths	59.6 %	17.9 %	11.9 %	4.3 %	3.4 %	2.9 %
Increased Maintenance	53.9 %	23.2 %	13.9 %	5.7 %	2.1 %	1.2 %
Widen Outside/Curb Lanes on Major Streets	47.7 %	23.2 %	19.3 %	6.2 %	2.8 %	0.8 %
Bicycle Boulevards	47.3 %	24.6 %	16.8 %	4.1 %	4.7 %	2.5 %
More Bike Routes	42.3 %	23.7 %	19.2 %	6.9 %	5.4 %	2.5 %
More Education, Encouragement & Enforcement Programs	35.7 %	18.6 %	23.4 %	9.7 %	7.4 %	5.2 %
Showers and Lockers at Work	34.7 %	18.9 %	21.0 %	6.5 %	10.9 %	7.1 %
More On-Road Bike Signage	27.6 %	22.7 %	24.5 %	13.0 %	8.2 %	4.0 %
More Bicycle Parking/Storage	25.8 %	24.6 %	23.6 %	10.6 %	9.8 %	5.6 %

Source: Alta Planning + Design, March 2009

Table 5-11 reports that 83.4% of respondents have used bicycle maps and guides, followed in popularity by 64.8% of respondents having used bicycle information websites.

Table 5-11: Survey Respondents' Program Participation

Program Type	Percent of Responses
Bicycle Maps and Guides	83.4 %
Bicycle Information Websites	64.8 %
Bicycling Incentive Programs	39.7 %
Materials Focused on Bicyclists Rights, Responsibilities, and the Health or Environmental Benefits of Bicycling	35.6 %
Route Planning Services for Bicyclists	29.5 %
Education Programs for Adult Cyclists	18.6 %
Education Programs for Motorists	12.7 %
Education Programs for Elementary, Middle/Junior, and High School Students	12.4 %
Education Programs for Law Enforcement Personnel	2.4 %

Source: Alta Planning + Design, March 2009

Table 5-12 shows that 66.2% of respondents would be highly interested in a public awareness campaign focused on bicyclists rights, responsibilities, and the health and environmental benefits of bicycling, followed closely by interest in user-friendly bicycle maps and guides and interest in bicycling incentive programs.

Table 5-12: Survey Respondents' Level of Interest in Developing or Expanding Bicycle Programs

Program Type	1 Highly Interested	2	3	4 Not at all Interested
Public Awareness Campaign Focused on Bicyclists Rights, Responsibilities, and the Health and Environmental Benefits of Bicycling	66.2 %	21.1 %	8.4 %	4.3 %
User-Friendly Bicycle Maps and Guides	58.2 %	29.5 %	7.9 %	4.4 %
Bicycling Incentive Programs	55.9 %	24.6 %	11.7 %	7.8 %
Bicycle Information Websites	54.6 %	28.9 %	12.0 %	4.5 %
Route Planning Services for Bicyclists	51.7 %	29.2 %	13.3 %	5.8 %
Education Programs for Motorists	49.2 %	23.3 %	15.1 %	12.4 %
Education Programs for Elementary, Middle/Junior, and High School Students	47.0 %	27.6 %	13.8 %	11.6 %
Education Programs for Law Enforcement Personnel	39.7 %	25.1 %	19.2 %	16.0 %
Education Programs for Adult Cyclists	34.2 %	33.8 %	19.5 %	12.5 %

Source: Alta Planning + Design, March 2009

Public Workshop

A public workshop was held at the Balboa Park Hall of Champions on June 10, 2009. The purpose of the public workshop was to explain the planning process, familiarize the community with the content of the draft Plan, and collect public comment on the content of the draft Plan. Since this workshop was geared toward presenting information and recording responses, it was held in an open house format. Each station was hosted by a knowledgeable staff person who was able to answer questions and record comments. The input obtained during the workshops assisted with developing the Plan. The open houses were organized into six stations with boards covering the following topics:

- Station 1 – Public Involvement Strategy
- Station 2 – Review of the Current Bicycle Master Plan
- Station 3 – Bicycle Demands Analysis
- Station 4 – Proposed Bicycle Network
- Station 5 – Prioritization Process
- Station 6 – Program Strategies

The Bicycle Master Plan Update public workshop
Photo credits: Vincent Noto

Approximately 125 people attended the workshop – more than twice the number of people who attended the 2001 Bicycle Master Plan public workshop. The comments recorded on comment cards and easel paper tablets are presented in **Appendix C**.

Bicycle Safety and Collision Analysis

Table 5.12 presents the number of collisions and collisions involving bicyclists in San Diego for five consecutive years: 2004, 2005, 2006, 2007 and 2008. This information was obtained from the California Highway Patrol's SWITRS website, which provides collision information by jurisdiction. As the table shows, fatal bicycle-related collisions on average account for nearly 5% of all fatal collisions. On average, almost 6% of collisions resulting in injuries involved bicyclists. Bicycle-involved collision rates seem to be relatively constant over the five-year period for San Diego, with the exception of a significant increase in bicycle-related injuries in 2008 (8.4%). The 512 bicycle-involved injury collisions reported is high in relation to the totals reported for the other years and also high relative to the total number of injury collisions reported for 2008. Fatal bicycle collisions also increased significantly in 2005 (7.1%) however the numbers of fatal collisions reported declined to lower levels in the years following 2005, indicating that no trend can be asserted.

Table 5.12: San Diego Bicycle-Involved Collisions Data 2004 - 2008

Year	Total Collisions		Total Bicycle-Related Collisions		Bicycle-Related Percent of Total Fatal	Bicycle-Related Percent of Total Injury
	Fatal	*Injury*	*Fatal*	*Injury*		
2004	98	7,449	5	430	5.1%	5.8%
2005	98	7,124	7	421	7.1%	5.9%
2006	102	9,583	3	397	2.9%	4.1%
2007	84	6,516	4	392	4.8%	6.0%
2008	81	6,123	3	512	3.7%	8.4%
TOTAL	463	36,795	22	2,152	4.8%	5.8%

Source: Statewide Integrated Traffic Records System (SWITRS) 2004, 2005, 2006, 2007 and 2008 Annual Reports

Safety is a major concern for both existing and potential bicyclists. For those who ride, safety is typically an on-going concern or even a distraction. For those who do not ride, it is one of the most compelling reasons not to ride. Nationwide, the total number of reported cyclist fatalities has dropped by 14% since 1997, with 814 fatalities reported in 1997 and 698 fatalities reported in 2007. Another 44,000 cyclists were injured in traffic collisions in 2007. These numbers account for 2% of all persons killed in traffic crashes and 2% of all people injured in traffic collisions in 2007. Of all California traffic fatalities in 2007, 2.7% (109) were cyclist fatalities. This is significantly higher than the nationwide average of 1.7%. Cyclist fatalities in California represent a fatality rate of 2.98 per million residents.

In 2007, adult cyclists (25 and older) accounted for 64% of the total number of cyclist fatalities in the United States; a significantly higher proportion than 46% in 1997. Cyclists under the age of 16 accounted for 15% of the fatalities and 29% of the injuries. However, cyclists under the age of 16 have higher fatality and injury *rates* than other age groups (2.4 fatalities per million population, about 4% higher than the overall cyclist fatality rate (2.31

per million population), and 281 injuries per million population, almost twice the injury rate for cyclists of all ages.)[3]

The proportion of collisions involving fatalities and bicyclists in San Diego was substantially higher at 4.8% compared to the statewide average of 2.7% and the nationwide average of 1.7%. It should be noted that the national injury rate does not take into account the potential for higher per capita bicycle injury and fatality rates in communities with higher than average cycling rates. San Diego's bicycle commuting mode share is consistent with California's (0.9%) and higher than the national average of 0.5%.[4] This may provide partial explanation for why the bicycle fatality collision rate is higher than the national average however it does not explain the severity of the bicycle-related collision proportion relative to bike mode share and total collisions in San Diego. Overall, these statistics indicate that San Diego requires a robust approach to bicycle safety improvements and programs.

Commute Patterns

Understanding how many people bicycle in San Diego is central to developing a baseline against which to measure success and is also imperative information to include in grant applications. This section presents United States Census "Commuting to Work" data as an indication of current bicycle system usage. A major objective of any bicycle facility enhancement or encouragement program is to increase the "bicycle mode split" or percentage of people who choose to bike rather than drive alone. Every saved vehicle trip or vehicle mile represents quantifiable reductions in air pollution and can help lessen traffic congestion. Due to the unstable nature of congestion, even small reductions in the number of vehicles on the road can dramatically improve congestion. **Table 5-14** presents commute to work data estimates reported by the 2006-2008 US Census 2006 – 2008 American Community Survey for the city of San Diego and, for comparative purposes, the United States, California, and County of San Diego.

Table 5.14: Means of Transportation to Work Data

Mode	United States	California	San Diego County	City of San Diego	
				Percent	*Number*
Bicycle	0.5%	0.9%	0.6%	0.9%	5,318
Drove Alone – car, truck or van	75.8%	72.9%	74.7%	75.0%	460,884
Carpool - car, truck or van	10.6%	12.0%	10.9%	9.7%	59,432
Transit	4.9%	5.2%	3.4%	4.1%	25,281
Walked	2.8%	2.8%	3.0%	3.1%	18,986
Other Means	1.4%	1.4%	1.3%	1.1%	7,365
Worked at Home	4.0%	4.8%	6.1%	6.1%	37,317
Total	100%	100%	100%	100%	614,583

Source: U.S. Census Bureau, 2006-2008 American Community Survey

3 NHTSA National Center for Statistics and Analysis, 2007 Traffic Safety Facts "Bicyclists and Other Cyclists" DOT HS 810 986

4 U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates

According to the estimates shown in Table 5-14, 0.8 percent of San Diego residents commute predominately by bicycle. This estimated bicycle mode share is slightly higher than the county estimate and above the national estimate but slightly lower than the state estimate. However, it is important to note that this estimate likely underestimates the true amount of bicycling that occurs in San Diego for several reasons. First, data reflects respondents' dominant commute mode and therefore does not capture trips to school, for errands or other bike trips that would supplant vehicular trips. Also, US Census data collection methods only enable a respondent to select one mode of travel, thus excluding bicycle trips if they constitute part of a longer multimodal trip.

The next section of this chapter presents a more realistic estimate of the bicycle mode share in the city based on adjustments for the likely under-estimations. The next section also estimates the potential number of future bicycle commuters in San Diego and calculates the reductions in vehicle-based air pollution that would result from increasing the number of cyclists in San Diego.

Trip Reduction and Potential Air Quality Benefits

Replacing vehicular trips with bicycle trips has a significant impact on reducing human-generated greenhouse gases (GHGs) in the atmosphere that contribute to climate change. Fewer vehicle trips and VMT translates into fewer mobile source pollutants, such as carbon dioxide, nitrogen oxides and hydrocarbons, being released into the air. This section first discusses the status of San Diego's air quality and then estimates potential air quality improvements that could be realized through implementation of this Plan.

Air Quality in San Diego

The city of San Diego lies within the San Diego Air Basin, which is regulated by the Air Pollution Control District (District) of the County of San Diego. The 4,255 square mile San Diego Air Basin is monitored for several air pollutants, including ozone, carbon monoxide, nitrogen dioxide and fine particles (PM10 and PM2.5).

Though air pollution in San Diego has improved dramatically in the last thirty years, and pollution levels meet the federal standards, pollution still exceeds the maximum allowable state limits for some portion of the year. In 2008, the city exceeded state 8-hour ozone standards 4 days of the year and exceeded the state ozone 1-hour standard 1 day of the year. The city exceeded the state annual arithmetic mean PM 2.5 standard by 0.3 micrograms, exceeded the state annual arithmetic mean PM10 standard by 6.2 micrograms, and exceeded the state 24-hour PM10 standard by 3.0 micrograms.[5]

According to the San Diego Air Pollution Control District's 2008 Report, motor vehicles are responsible for approximately 46% of ozone (smog) emissions. Reducing vehicle miles traveled (VMTs)[6] by providing residents safe and functional ways to get to work, school, or

5 2008 San Diego Air Pollution Control Board Annual Report.

6 Vehicle Miles Traveled is a measurement of the extent of motor vehicle operation, a sum of all miles traveled by motor vehicles over a given period.

shopping without using a motor vehicle will aid in reducing the amount of these pollutants produced by motor vehicles.

Future Ridership and Potential Air Quality Benefits

This section presents a revised estimate of current bicycling levels in San Diego using US Census data along with several adjustments for likely Census underestimations. This section also presents forecast future bicycle ridership for the city along with forecast trip reduction and air quality benefits associated with bicycle trips replacing automobile trips. While these revised estimates and forecasts are ambitious, they are important to building a case for investing in bicycle facilities and programs over time.

By supplementing US Census and SANDAG data with estimates of bicycle mode share for students and transit riders, this plan estimates that the actual current number of daily bicycle commuters in San Diego is closer to 47,399 riders, making 94,799 daily trips and saving an estimated 29,061 VMTs per weekday. The calculations behind this estimate are described in **Table 5.15**.

Table 5.16 quantifies the estimated increase in bicyclists and resulting reduction in VMTs in San Diego assuming completion of the bicycle network by the year 2030. It is predicted that upon completion of the proposed regional bicycle network, the total number of work, transit-bicycle bicycle commuters could increase from the current estimate of 47,399 to 112,378, resulting in an estimated decrease of 1,714 pounds of hydrocarbons per weekday, 1,197 pounds of mono-nitrogen oxides (NOx) per weekday, 1,711 pounds of PM10 (particulate matter) per year, and 121,397,271 pounds of carbon dioxide (CO2) per year. Predicted increases in cycling are based on increases in cycling on newly built bikeways in San Francisco, California; Portland, Oregon; and Seattle, Washington.[7]

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[7] San Francisco saw 61% corridor increase at 20% network completion, translating to 305% adjusted increase. Portland saw 137% corridor increases at 50% system completion, translating to 274% adjusted increase. Seattle saw 90% corridor increase at 35% system completion, translating to 257% adjusted increase. This translates into an average 279% increase upon system completion. Adjusted increase reflects the projected amount of bicycling that will occur when the system is completed, based on studies of communities with completed or nearly completed bikeway systems. Corridor increases refers to the average increase in bicycling in the corridors in each city, before and after bikeways were installed. System completion refers to the percent completion of the citywide bikeway network in each city.

Table 5.15: Adjusted Estimates of Current Bicycle Commute and Air Quality Benefits

Current Commuting Statistics and Estimates		Source/Calculation
City of San Diego Population	1,336,865	*SANDAG 2008 Total Population Estimate*
Number of Employed Persons	668,022	*2006-2008 ACS 3-Year Estimates, US Census*
Bicycle-to-Work Mode Share	0.9%	*2006-2008 ACS 3-Year Estimates, US Census*
Number of Bicycle Commuters	6,012	*Employed persons multiplied by bike-to-work mode share*
Work-at-Home Mode Share	6.1%	*2006-2008 ACS 3-Year Estimates, US Census*
Estimated Work-at-Home Bicycle Commuters	20,375	*Assumes 50% of population working at home makes at least one bicycle trip per day*
Existing Transit-to-Work Mode Share	4.1%	*2006-2008 ACS 3-Year Estimates, US Census*
Estimated Transit Bicycle Commuters	6,847	*Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle.*
School Children Grades K-8	135,535	*2006-2008 ACS 3-Year Estimates, US Census*
Estimated School Children Bicycling Mode Share	2.0%	*National Safe Routes to School surveys (2003)*
Estimated School Bicycle Commuters	2,711	*School children population multiplied by school children bike mode share*
Number of College Students in Region	114,546	*2006-2008 ACS 3-Year Estimates, US Census*
Estimated College Student Bicycling Mode Share	10.0%	*National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995. Review of bicycle commute share in seven university communities (10%)*
Estimated College Bicycle Commuters	11,455	*College student population multiplied by college student bicycling mode share*
Adjusted Current Estimated Total Number of Daily Bicycle Commuters	47,399	*Total of bike-to-work, transit, school, and college bicycle commuters. Does not include recreation or utilitarian.*
Adjusted Current Estimated Total Daily Bicycle Trips	94,799	*Total bicycle commuters x 2 (for round trips)*
Current Vehicle Miles and Trip Reductions Estimates		**Source/Calculation**
Reduced Vehicle Trips per Weekday	29,061	*Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children Based on survey results from 10 California cities conducted by Alta between 1990 and 1999, L.A. Countywide Policy Document survey (1995), and National Bicycling & Walking Study, FHWA, 1995.*
Reduced Vehicle Trips per Year	7,584,906	*Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year).*
Reduced Vehicle Miles per Weekday	222,431	*Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren*
Reduced Vehicle Miles per Year	58,054,452	*Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year).*
Estimated Current Air Quality Benefits		**Source/Calculation**
Reduced Hydrocarbons (pounds/weekday)	667	*Daily mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.)*
Reduced PM10 (pounds/weekday)	3	*Daily mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM2.5 (pounds/weekday)	2	*Daily mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced NOX (tons/weekday)	466	*Daily mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*

Table 5.15: Adjusted Estimates of Current Bicycle Commute and Air Quality Benefits (continued)

Reduced CO (pounds/weekday)	6,081	*Daily mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced C02 (pounds/weekday)	180,949	*Daily mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced Hydrocarbons (pounds/year)	174,064	*Yearly mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM10 (pounds/year)	666	*Yearly mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM2.5 (pounds/year)	627	*Yearly mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced NOX (tons/year)	121,589	*Yearly mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced CO (pounds/year)	1,587,053	*Yearly mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced C02 (pounds/year)	47,227,630	*Yearly mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*

Source: Alta Planning + Design, February 2010

Table 5.16: Future Bicycle Commute and Air Quality Benefits Estimates

Current Commuting Statistics and Estimates		Source/Calculation
City of San Diego Population	1,656,257	*SANDAG 2030 Total Population Forecast*
Number of Employed Persons	1,010,157	*SANDAG 2030 Total Employed Persons Forecast*
Bicycle-to-Work Mode Share	2.7%	*Assumption based on the experiences of other major cities*
Number of Bicycle Commuters	27,274	*Employed persons multiplied by bike-to-work mode share*
Work-at-Home Mode Share	10.0%	*Estimate based on historic work-at-home population growth*
Estimated Work-at-Home Bicycle Commuters	50,508	*Assumes 50% of population working at home makes at least one bicycle trip per day*
Existing Transit-to-Work Mode Share	4.1%	*Estimate based on historic transit-to-work trends*
Estimated Transit Bicycle Commuters	10,354	*Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle.*
School Children Grades K-8	181,297	*SANDAG 2030 Population Forecasts*
Estimated School Children Bicycling Mode Share	2.5%	*Assumes increase in usage based on SR2S efforts and network development*
Estimated School Bicycle Commuters	4,532	*School children population multiplied by school children bike mode share*
Number of College Students in Region	140,781	*Estimate based on historic percent population*
Estimated College Student Bicycling Mode Share	14.0%	*National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995. Review of bicycle commute share in seven university communities (10%)*
Estimated College Bicycle Commuters	19,709	*College student population multiplied by college student bicycling mode share*
Adjusted Current Estimated Total Number of Daily Bicycle Commuters	112,378	*Total of bike-to-work, transit, school, and college bicycle commuters. Does not include recreation or utilitarian.*
Adjusted Current Estimated Total Daily Bicycle Trips	224,756	*Total bicycle commuters x 2 (for round trips)*
Current Vehicle Miles and Trip Reductions Estimates		**Source/Calculation**
Reduced Vehicle Trips per Weekday	73,571	*Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children Based on survey results from 10 California cities conducted by Alta between 1990 and 1999, L.A. Countywide Policy Document survey (1995), and National Bicycling & Walking Study, FHWA, 1995.*
Reduced Vehicle Trips per Year	19,202,012	*Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year).*
Reduced Vehicle Miles per Weekday	571,752	*Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren*
Reduced Vehicle Miles per Year	149,227,306	*Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year).*
Estimated Current Air Quality Benefits		**Source/Calculation**
Reduced Hydrocarbons (pounds/weekday)	1,714	*Daily mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.)*
Reduced PM10 (pounds/weekday)	7	*Daily mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM2.5 (pounds/weekday)	6	*Daily mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced NOX (tons/weekday)	1,197	*Daily mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced CO (pounds/weekday)	15,630	*Daily mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*

5.16: Future Bicycle Commute and Air Quality Benefits Estimates (continued)

Reduced C02 (pounds/weekday)	465,124	*Daily mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced Hydrocarbons (pounds/year)	447,426	*Yearly mileage reduction multiplied by 1.36 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM10 (pounds/year)	1,711	*Yearly mileage reduction multiplied by 0.0052 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced PM2.5 (pounds/year)	1,612	*Yearly mileage reduction multiplied by 0.0049 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced NOX (tons/year)	312,540	*Yearly mileage reduction multiplied by 0.95 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced CO (pounds/year)	4,079,475	*Yearly mileage reduction multiplied by 12.4 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*
Reduced C02 (pounds/year)	121,397,271	*Yearly mileage reduction multiplied by 369 grams per reduced mile (Emissions rates from EPA report 420-F-05-022, 2005.)*

Source: Alta Planning + Design, February 2010

VI. Bicycle Facility Recommendations

The recommended improvements for the San Diego Bicycle Master Plan consist of bikeway network facilities, intersection and other spot improvements, and bicycle support facilities. Recommended bicycle support facilities and programs include bike parking, routine maintenance, signage, and bicycle signal detection maintenance. The recommended network consists primarily of on-street facilities, including 868 miles of proposed bike lanes, bike routes, bicycle boulevards, and cycle tracks. The plan also recommends 170 miles of paved multi-use paths. These totals include existing facilities and proposed unbuilt facilities.

San Diego's numerous open spaces, parks, temperate weather and relatively compact downtown help to make bicycling in San Diego an effective transportation and recreation option at any time of the year. The recommendations included in this chapter will help to enhance San Diego's status as a great place to bicycle.

Recommended Bikeway Network

A comprehensive bikeway network improves bicyclists' level of safety, convenience, and access to key destinations. Planning a bikeway network enables the City to prioritize and seek funding to construct bicycle facilities where they will provide the greatest benefit to bicyclists and the community at-large. It is important to note that bicyclists are legally entitled to ride on all City streets whether the streets are a part of the designated bikeway network or not.

Bicycle Network Identification Process

The proposed bicycle network was identified through a process that considered existing facilities, planned facilities, and bicycling demand, as listed below:

- Existing Bicycle Facilities (2009)
- San Diego Bicycle Master Plan (2002)
- San Diego Downtown Community Plan (2006)
- San Diego Regional Bicycle Plan (2009)

Together, these four networks served as a starting point for the development of the updated bicycle network. **Figures 6-2**, **6-3** and **6-4** display the bicycle networks proposed in each of the planning documents listed above. **Figure 6-5** displays the combination of these four networks. This preliminary bicycle network comprised of existing facilities and planned facilities was then enhanced with the network identified via the demand analysis, as presented in Chapter 5 (Figure 5-16). In other words, the bicycle demand analysis allowed for systematic identification of high bicycle demand roadway segments that do not currently have bicycle facility and were not proposed for bicycle facilities in any of the currently adopted plans.

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FIGURE 6-1: Existing San Diego Bicycle Network

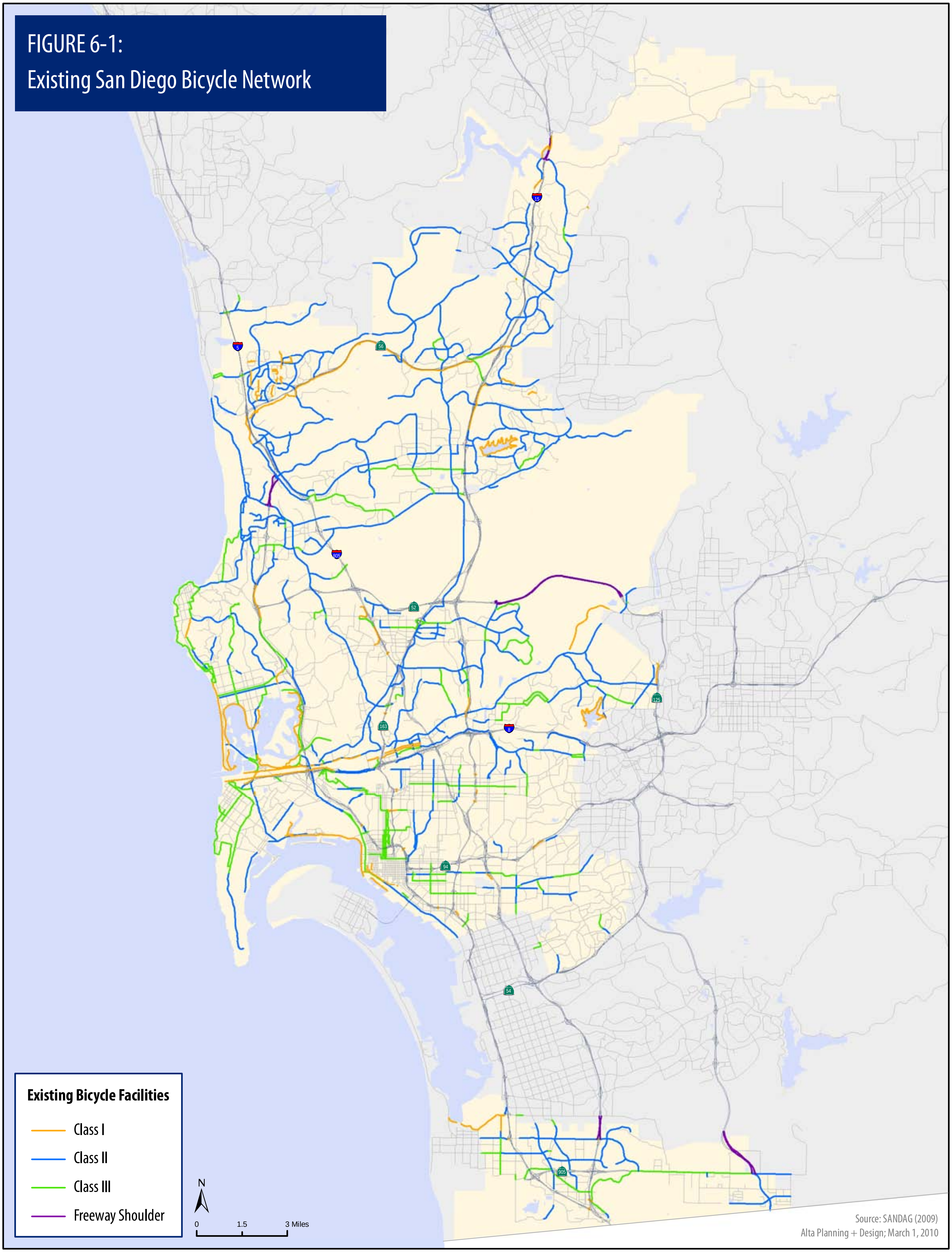

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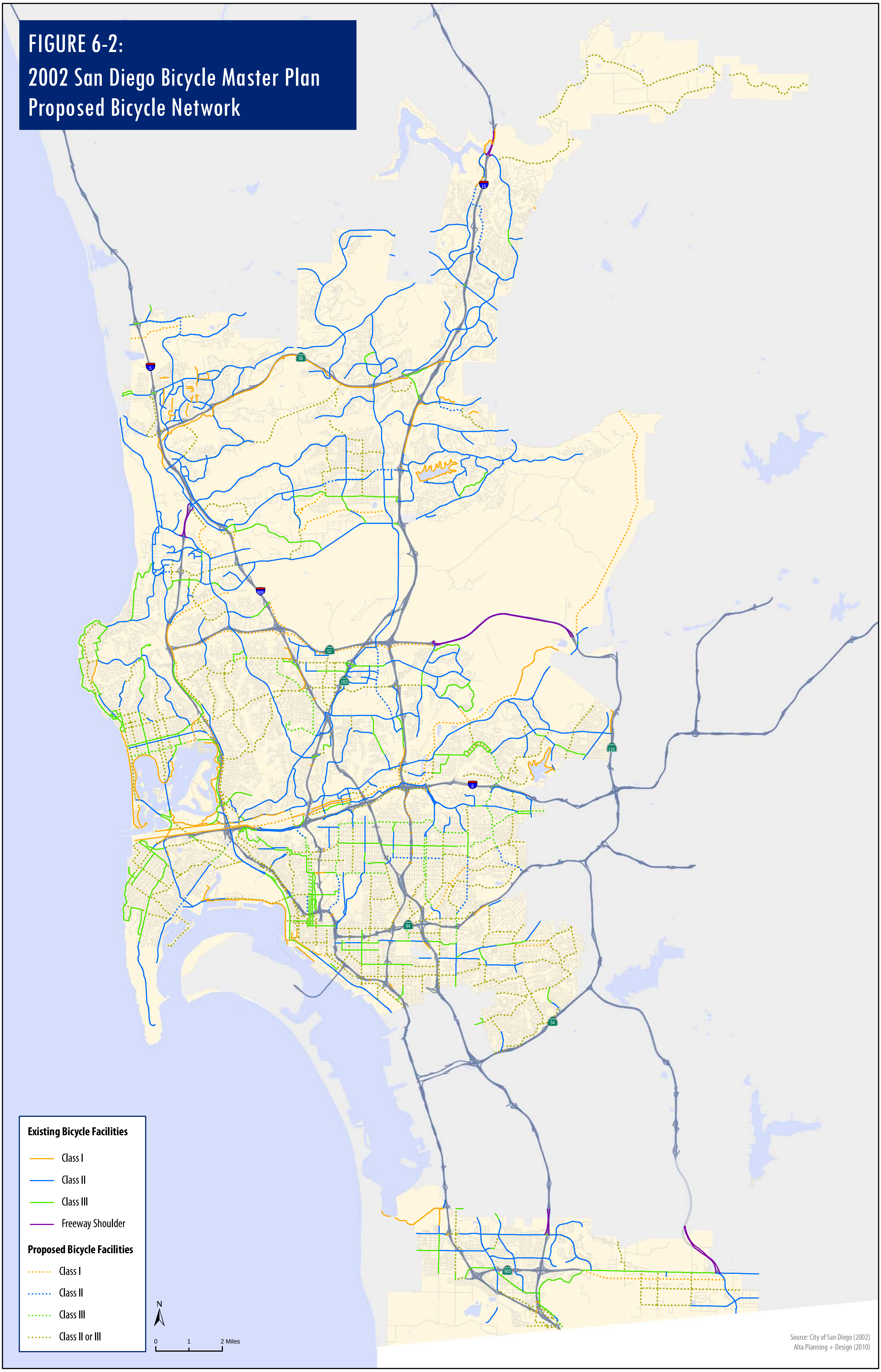
FIGURE 6-2:
2002 San Diego Bicycle Master Plan Proposed Bicycle Network



Source: City of San Diego (2002)
Alta Planning + Design (2010)

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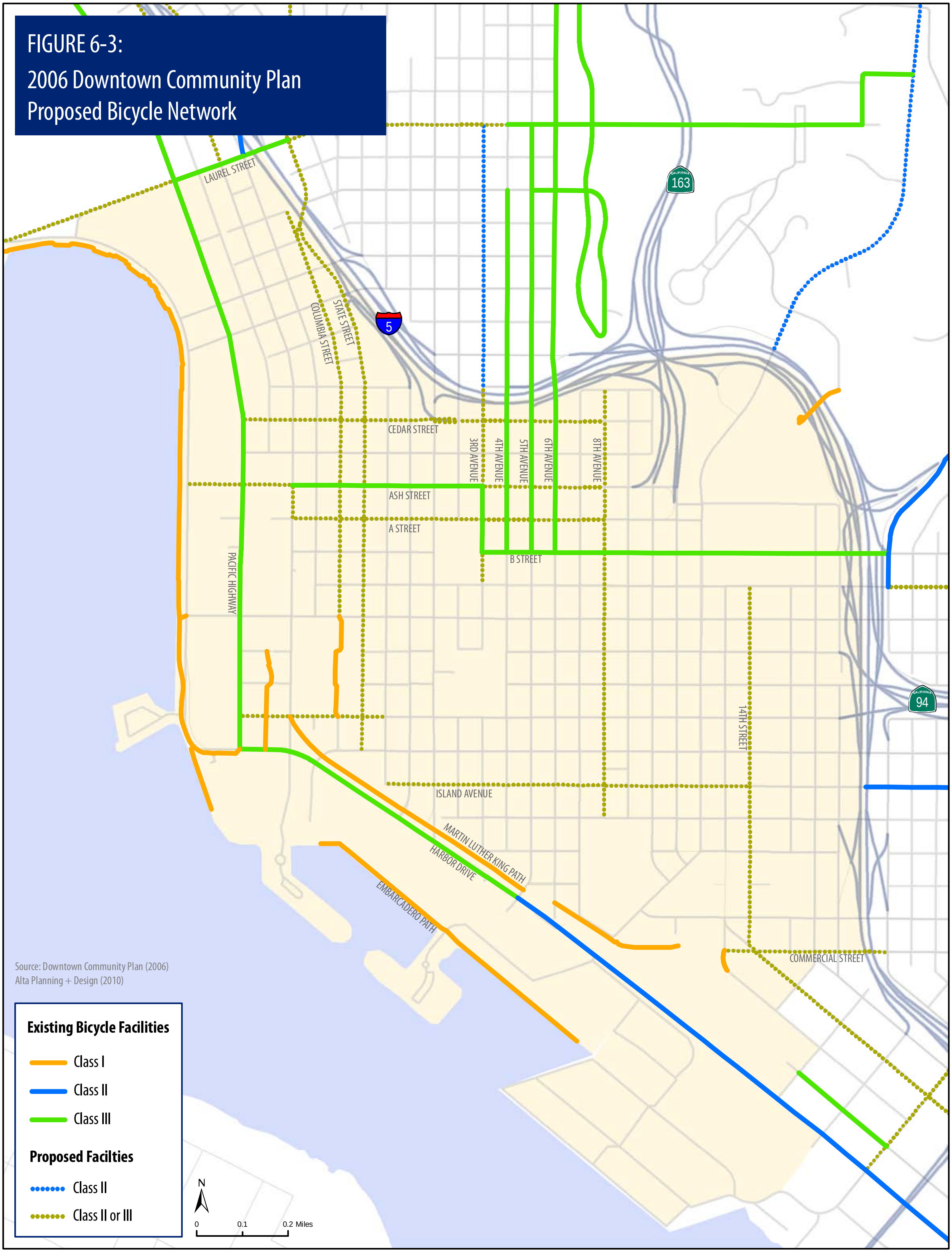
FIGURE 6-3:
2006 Downtown Community Plan
Proposed Bicycle Network
LAUREL STREET
STATE STREET
COLUMBIA STREET
CEDAR STREET
3RD AVENUE
4TH AVENUE
5TH AVENUE
6TH AVENUE
8TH AVENUE
ASH STREET
A STREET
B STREET
PACIFIC HIGHWAY
ISLAND AVENUE
14TH STREET
MARTIN LUTHER KING PATH
HARBOR DRIVE
EMBARCADERO PATH
COMMERCIAL STREET
163
5
94
Source: Downtown Community Plan (2006)
Alta Planning + Design (2010)
Existing Bicycle Facilities
Class I
Class II
Class III
Proposed Facilties
Class II
Class II or III
N
0
0.1
0.2 Miles

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FIGURE 6-4: SANDAG's 2009 Proposed Regional Bicycle Network

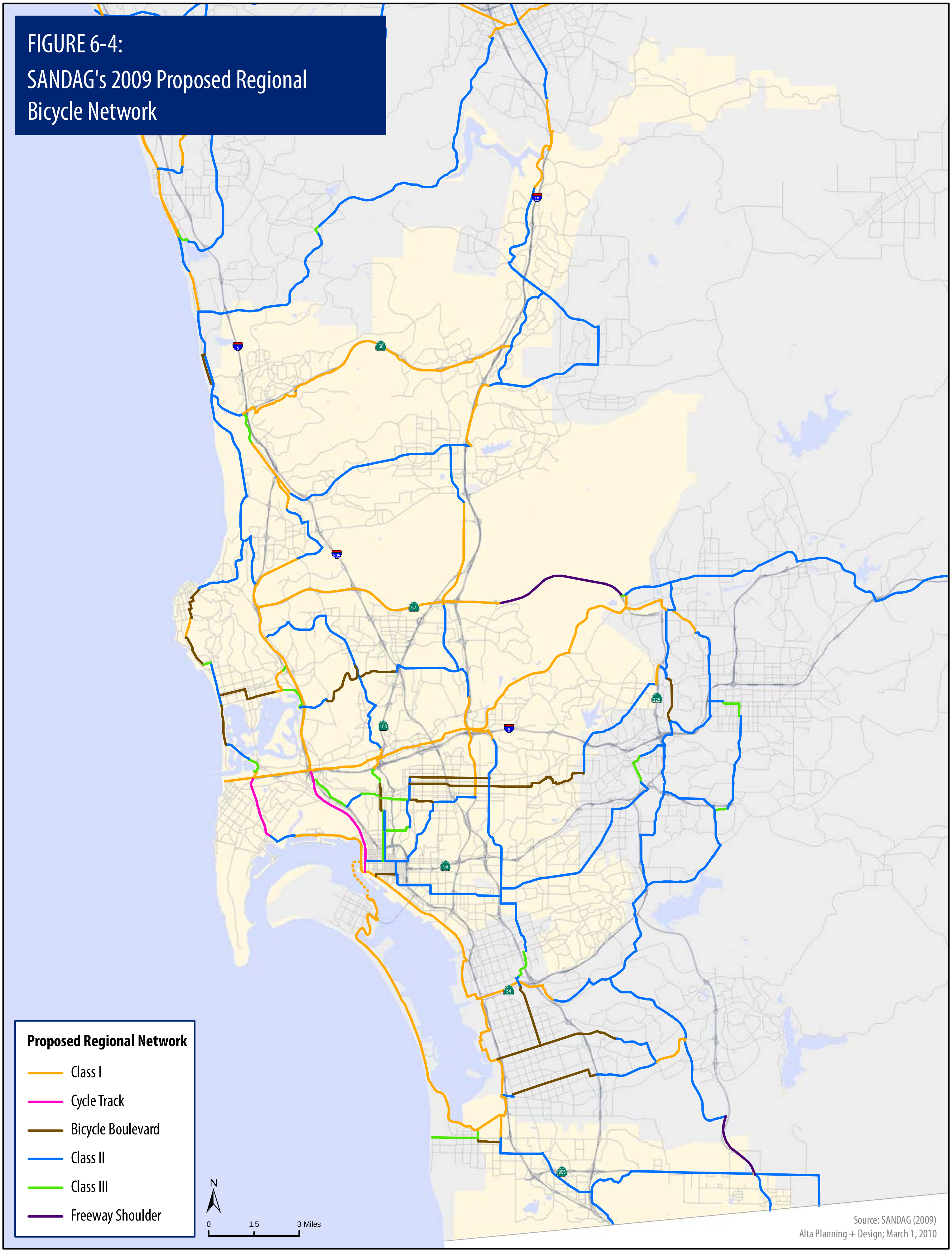

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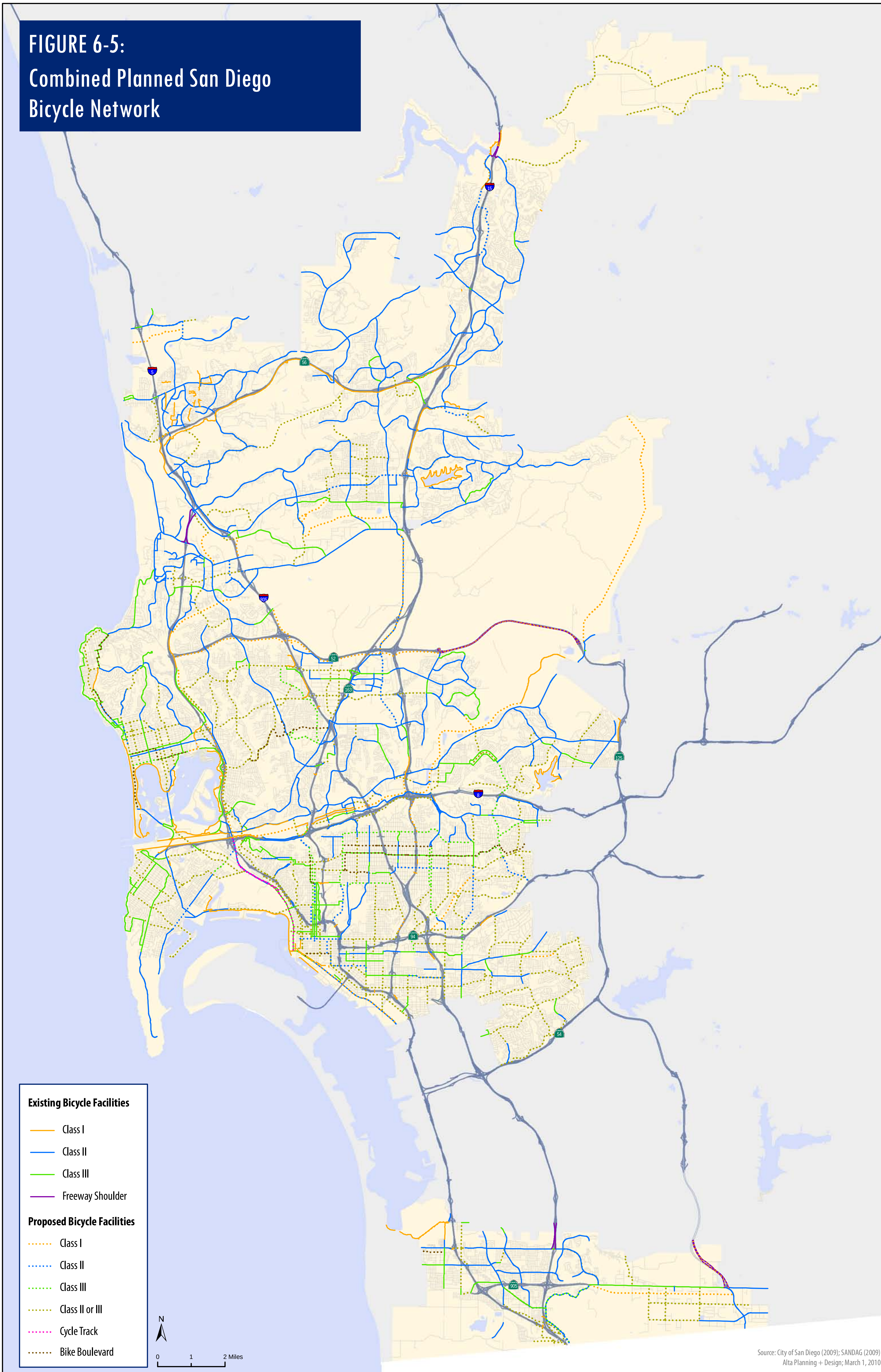
FIGURE 6-5: Combined Planned San Diego Bicycle Network



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This network was then subjected to a refinement process to avoid proposing facilities on very low traffic volume roadways, as well as to avoid disconnected facilities and to ensure basic sensibility. In addition, a City planner for each of the Community Planning Areas reviewed the preliminary proposed bicycle network and provided suggested refinements. **Appendix D** elaborates upon the refinement process applied to the preliminary proposed network.

Figure 6-6 displays the refined proposed bicycle network, distinguishing existing bicycle facilities, unbuilt proposed network from the three previous or on-going planning efforts, and unbuilt proposed facility resulting from the demand analysis. There are a total of 511 miles of existing bicycle facilities, 175 miles of unbuilt proposed facility from previous or on-going planning efforts, and 194 miles of unbuilt proposed facility resulting from the demand analysis.

Proposed Bicycle Network with Classifications

Figure 6-7A and **6-7B** display the final proposed bicycle network with classifications. The proposed facility classifications are based on the proposed 2002 Bicycle Master Plan, Downtown Community Plan, San Diego Regional Bicycle Plan networks, and input from City staff including detailed input from Community Planning staff. **Table 6.1** summarizes the proposed bicycle network miles including existing, proposed unbuilt bikeways, and change in facility type.

Table 6.1: Proposed San Diego Bicycle Network

Facility Type	Miles of Existing	Miles of Proposed Unbuilt	Total Miles of Facility
Class I – Bike Path	72.3	98.1	170.4
Class II – Bike Lane	309.4	90.0	399.4
Class III – Bike Route	112.9	166.3	279.2
Class II or III (TBD)	--	147.7	147.7
Freeway Shoulder	16.1	(-16.1)	0.0
Bicycle Boulevard	0	39.8	39.8
Cycle Track	0	7.6	7.6
Totals	510.7	533.5	1,044.1

Source: Alta Planning + Design, February 2010

As shown in Table 6.1, there are approximately 510 miles of existing facility with the majority being Class II bike lanes. The proposed bicycle network includes recommendations for an additional 533 miles of bicycle facility, for a future network totaling almost 1,050 miles.

High Priority Projects

The 40 highest priority bicycle projects were identified through a prioritization process applied to the recommended bicycle network presented in Figures 6-7A and 6-7B. The prioritization process is described in the following section. These 40 top priority projects comprise the first phase in implementing the recommended bicycle network.

Prioritization Process

The bicycle network was prioritized based on key indicators of demand and deficiencies in order to guide network implementation phasing. The prioritization factors include bicycle demands, bicycle network gaps, public input gathered through the outreach process, overlap with the proposed regional bicycle network, and bicycle crashes. Data on these factors were entered into a GIS system along with their respective priority points.

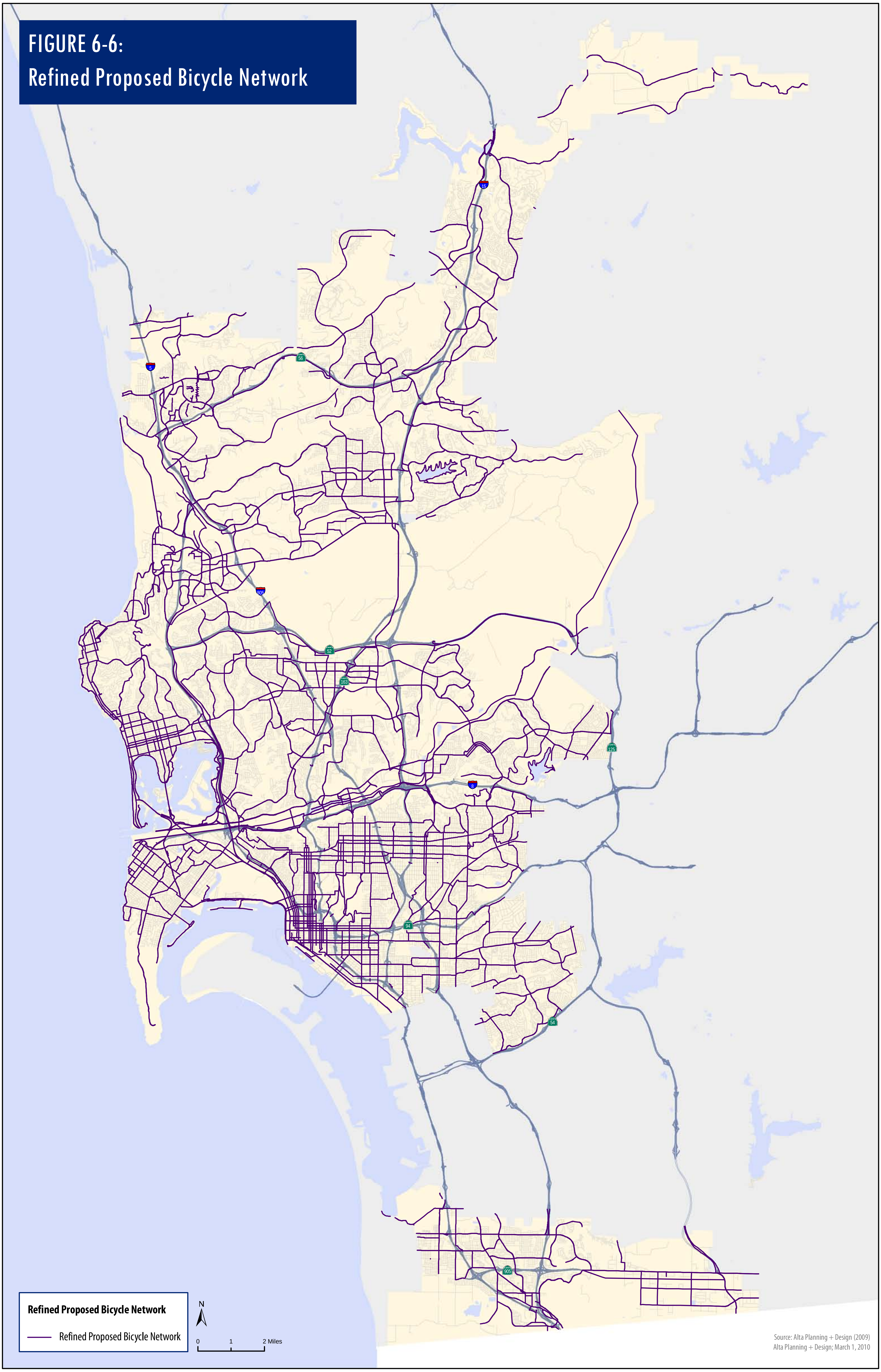
Table 6.2 summarizes the prioritization inputs and point values assigned to each factor, which were finalized after extensive review and input from the Project Working Group. **Figures 6-8** through **6-12** display each of the inputs to the prioritization process along with their respective priority points.

Table 6.2: Bicycle Network Prioritization Factors and Points

Prioritization Factor	Point Range
Combined Demand (Inter and Intra Community)	0 to 24
Bicycle Facility Gaps	0 to 6
Bicycle Crashes	0 to 6
Public Comment	0 or 3
Overlap with Proposed Regional Network	0 to 3

Source: Alta Planning+Design, February 1, 2009

FIGURE 6-6:
Refined Proposed Bicycle Network



Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010

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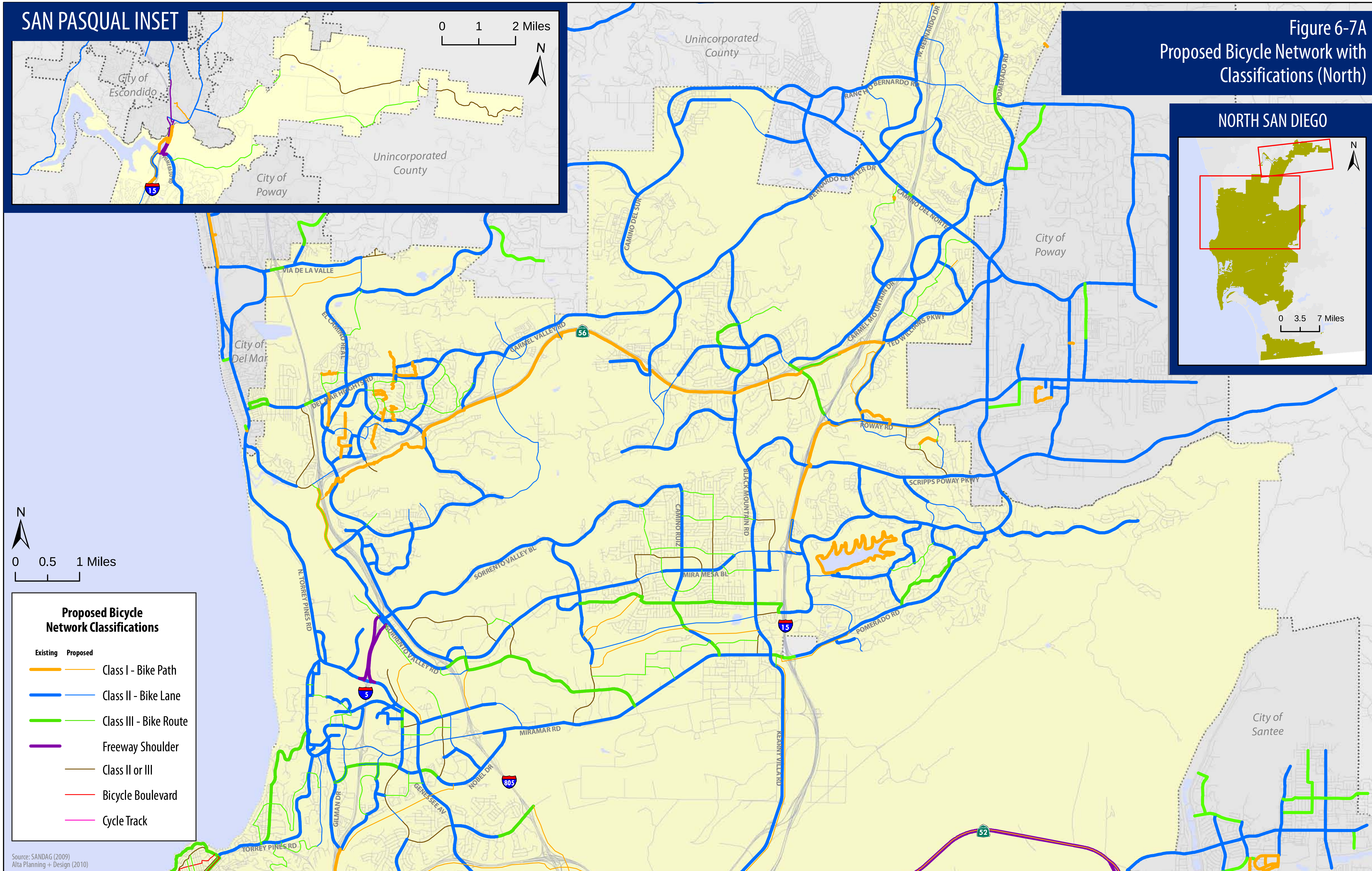

Figure 6-7A
Proposed Bicycle Network with Classifications (North)

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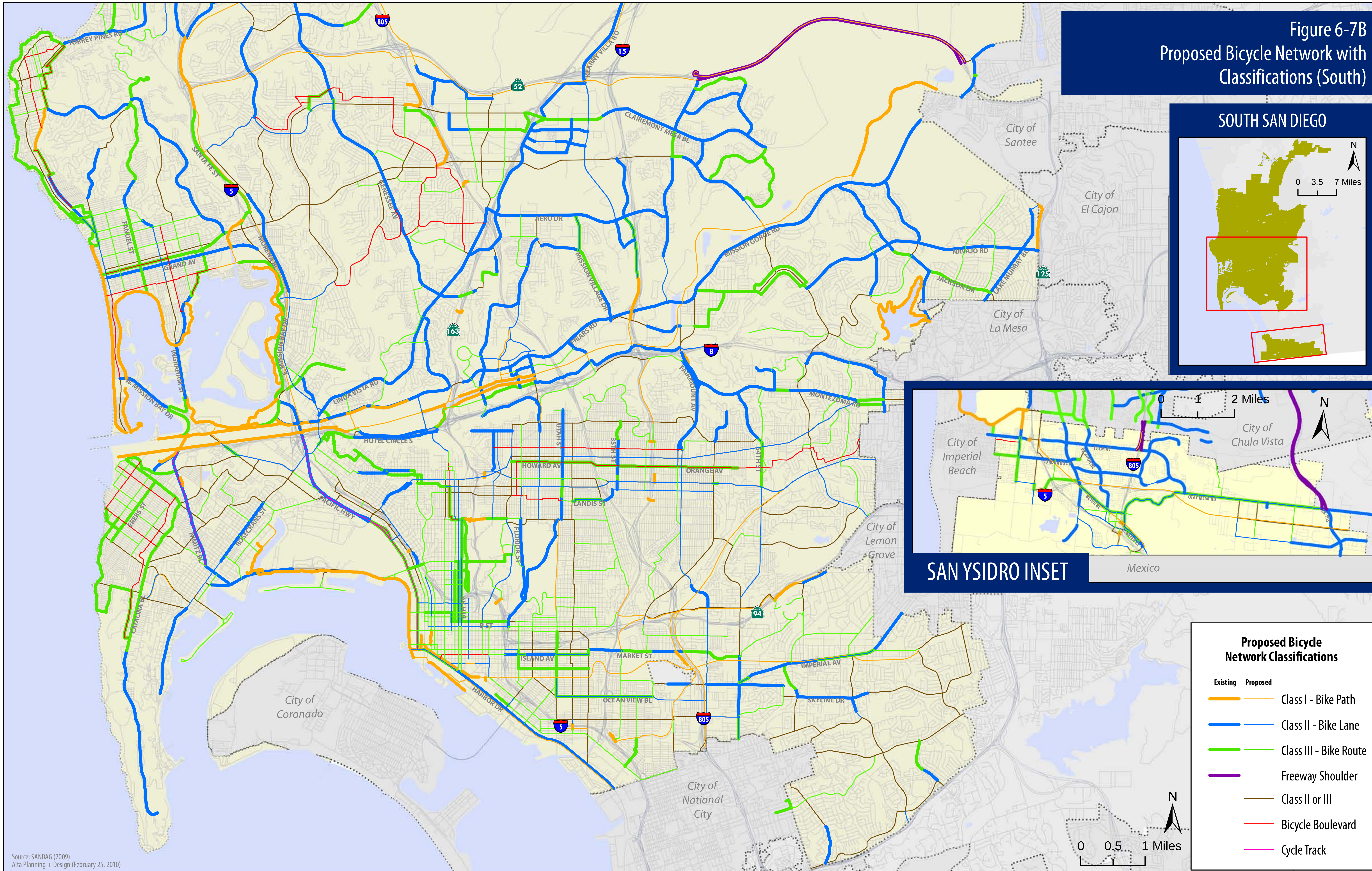
Figure 6-7B
Proposed Bicycle Network with Classifications (South)
SOUTH SAN DIEGO
0 3.5 7 Miles
SAN YSIDRO INSET
0 1 2 Miles
City of Imperial Beach
City of Chula Vista
Mexico
Proposed Bicycle Network Classifications
Existing
Proposed
Class I - Bike Path
Class II - Bike Lane
Class III - Bike Route
Freeway Shoulder
Class II or III
Bicycle Boulevard
Cycle Track
0 0.5 1 Miles
City of Santee
City of El Cajon
City of La Mesa
City of Lemon Grove
City of National City
City of Coronado
TORREY PINES RD
SANTA FE ST
GRAND AV
CLAIREMONT MESA BL
KEARNY VILLA RD
AERO DR
MISSION GORGE RD
NAVAJO RD
JACKSON DR
LAKE MURRAY BL
FRIARS RD
LINDA VISTA RD
MONTEZUMA RD
HOTEL CIRCLE S
HOWARD AV
ORANGE AV
LANDIS ST
PACIFIC HWY
ROSECRANS ST
CATALINA BL
MARKET ST
ISLAND AV
IMPERIAL AV
OCEAN VIEW BL
SKYLINE DR
HARBOR DR
Source: SANDAG (2009)
Alta Planning + Design (February 25, 2010)

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FIGURE 6-8:
Prioritization Input - High Demands

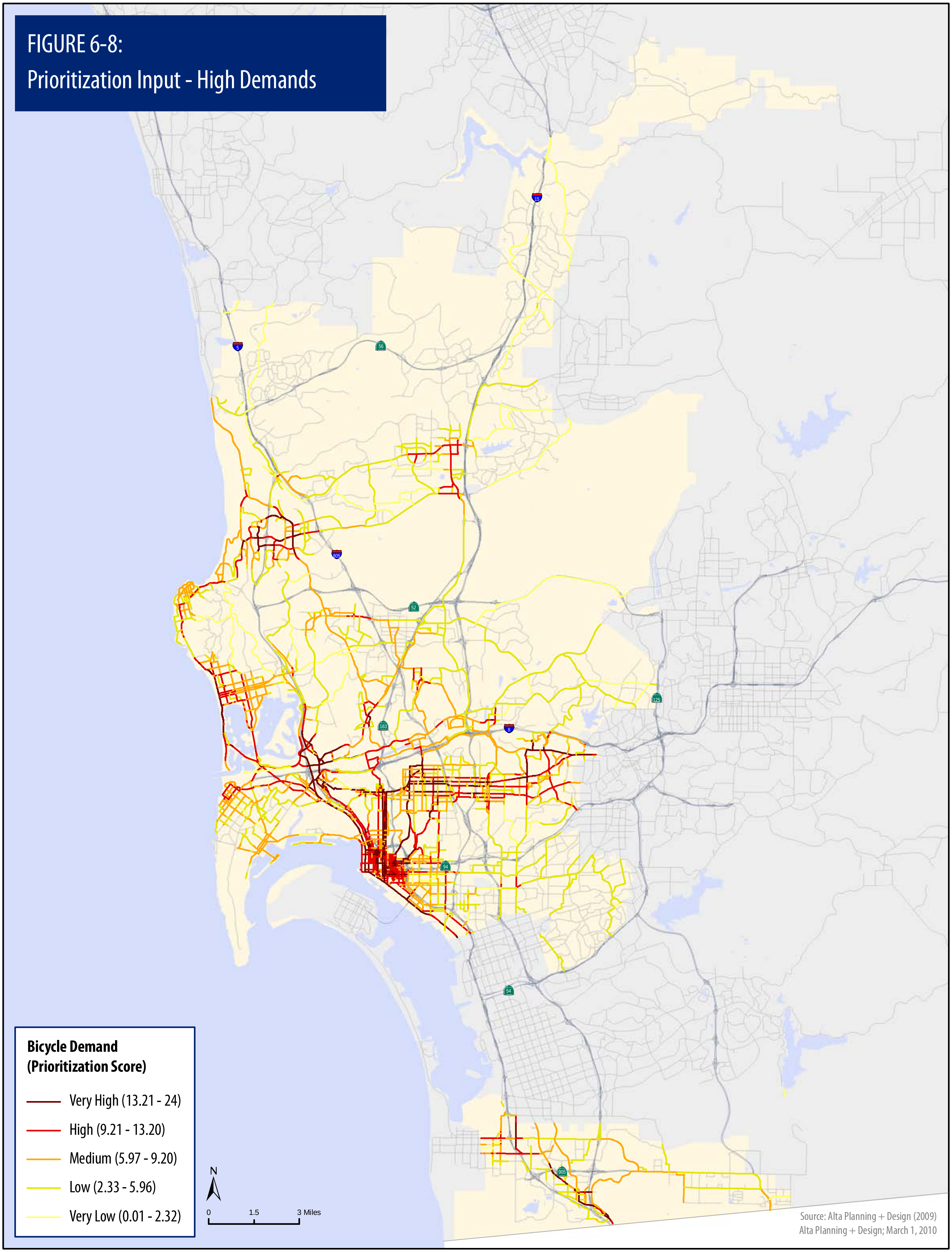

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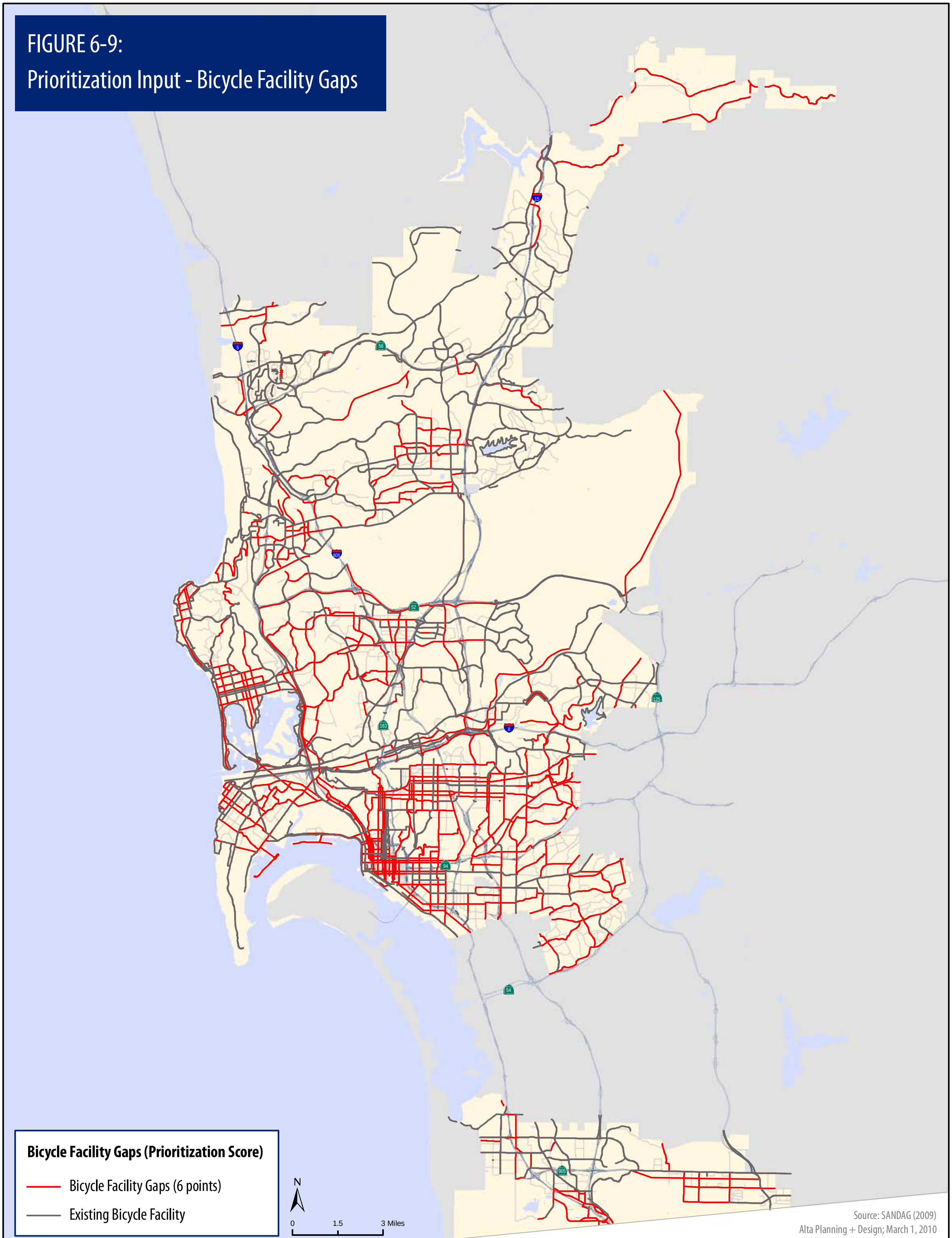
FIGURE 6-9:
Prioritization Input - Bicycle Facility Gaps



Source: SANDAG (2009)
Alta Planning + Design; March 1, 2010

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FIGURE 6-10:
Prioritization Input - Bicycle Crashes
(2002 - 2007)

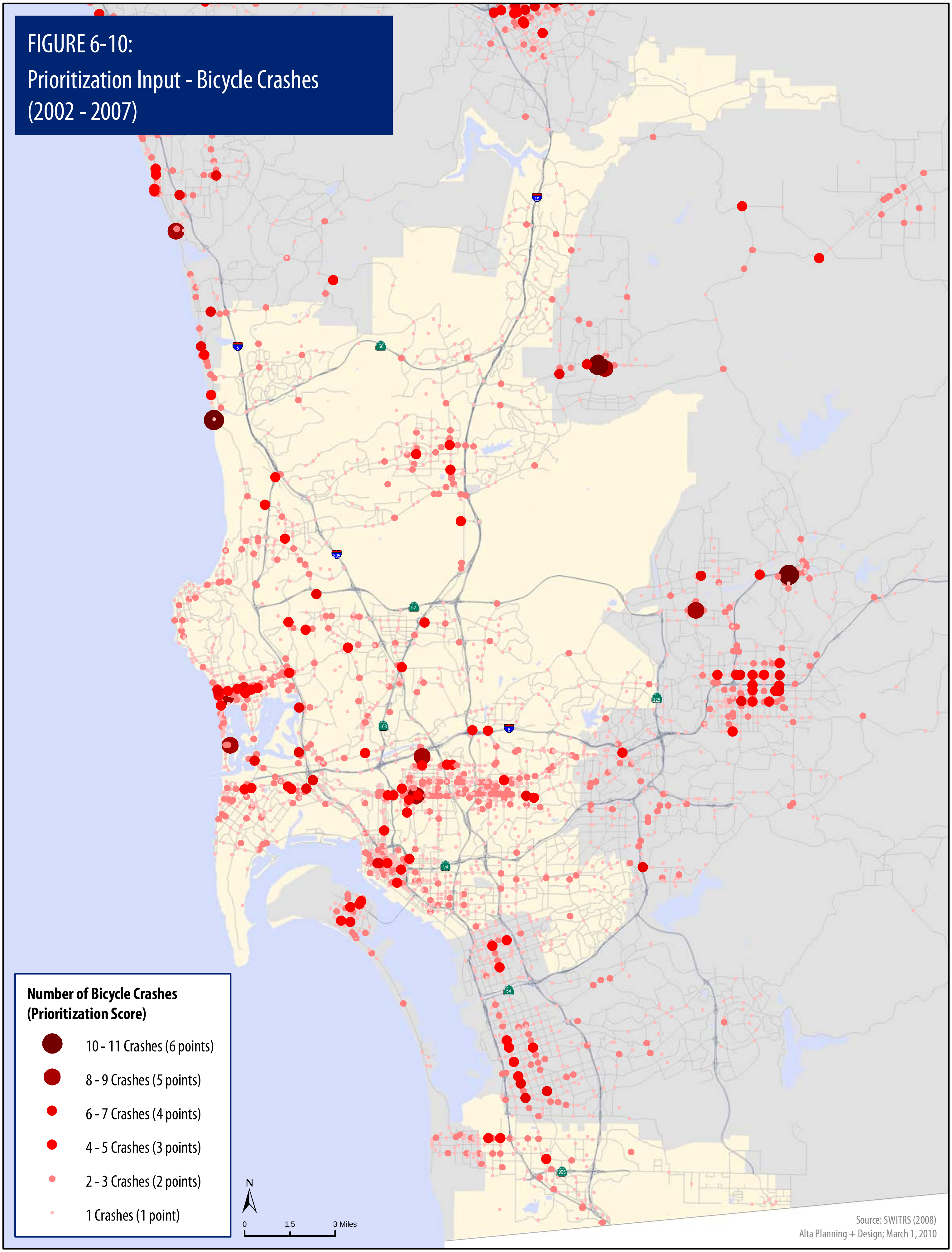

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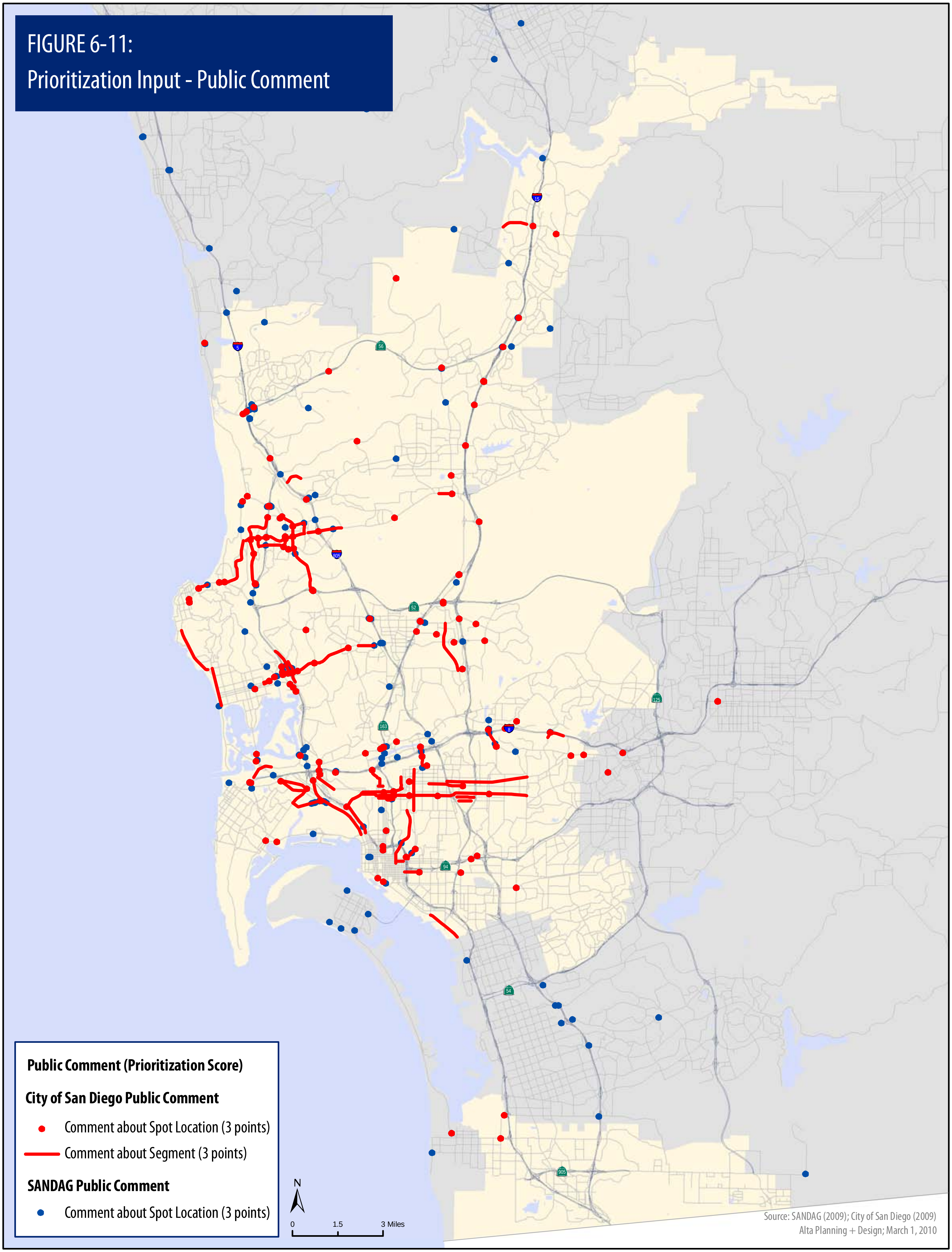
FIGURE 6-11:
Prioritization Input - Public Comment



Source: SANDAG (2009); City of San Diego (2009)
Alta Planning + Design; March 1, 2010

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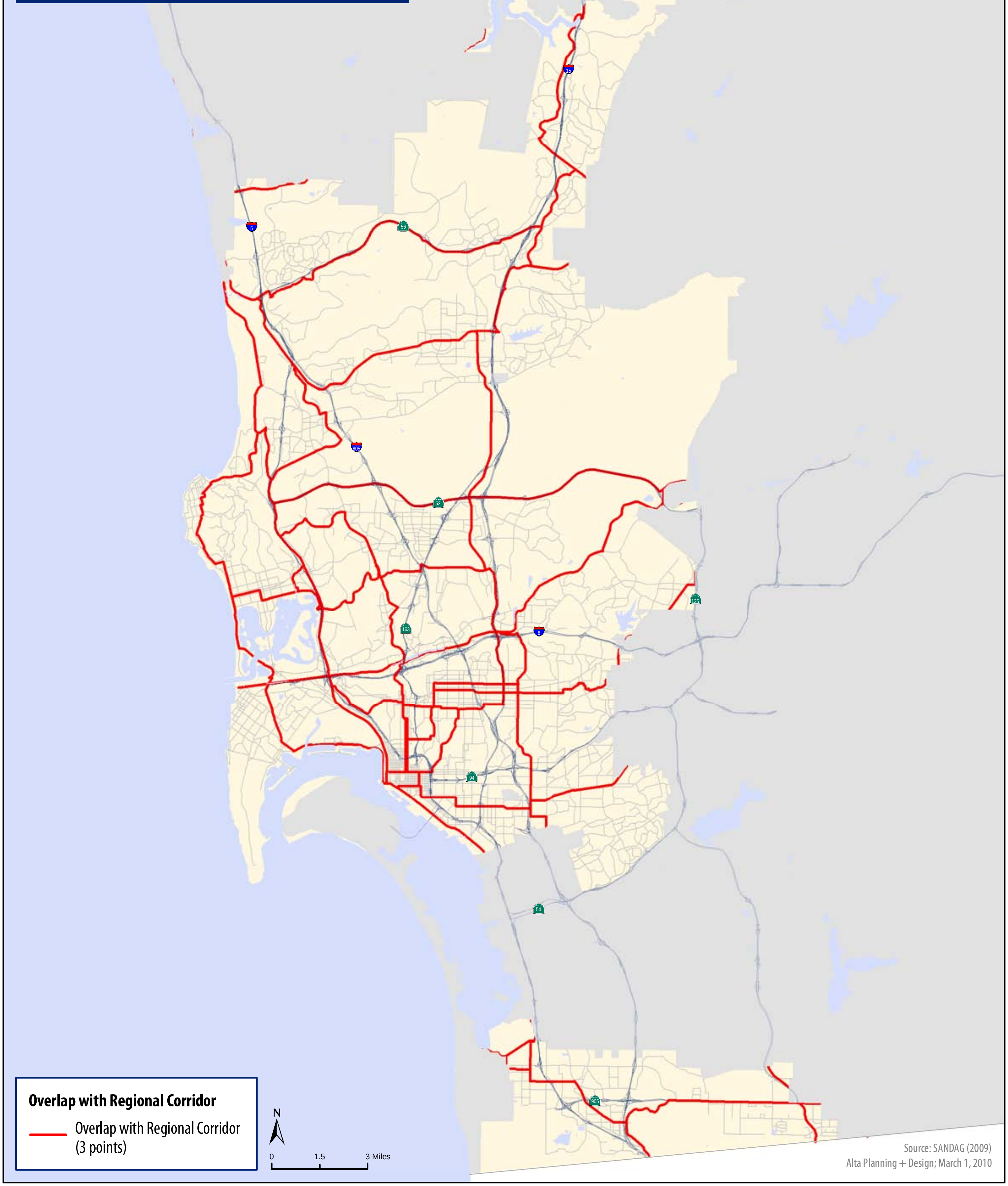
FIGURE 6-12:
Prioritization Input - Overlap with the Proposed Regional Network



Source: SANDAG (2009)
Alta Planning + Design; March 1, 2010

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Figure 6-13 displays the composite prioritization (the sum of points associated with each of the inputs) across the entire proposed bicycle network, while **Figure 6-14** displays the top 25% scoring segments which comprise the top priority projects.

40 Top Priority Bicycle Projects

Figures 6-15A, 6-15B and **6-15C** display the 40 Top Priority Bicycle Projects that fell within the top twenty-five percentile of the priority rankings. **Table 6.3** summarizes the 40 Top Priority Bicycle Projects' extents, proposed facility type(s), mileage, and estimated cost. Each of these 40 Top Priority Bicycle Projects are also displayed on an individual project sheet that includes a description of the project area and issues; a listing of the specific recommended improvements; a planning-level cost estimate; and an overview map of the project area with existing and proposed bicycle facilities. Chapter 8 presents the 40 Top Priority Bicycle Project Sheets.

Table 6.3: 40 Top Priority Bicycle Projects

Rank	Roadway	From:	To:	Proposed Facility	Existing Facility	Segment Miles	Project Miles
1	Park Boulevard	Village Place	B Street	Class II		1.16	1.16
2	Upas Street	Park Boulevard	Florida Street	Class III		0.22	0.80
	Park Boulevard	Upas Street	Village Place	Class II		0.58	
3	C Street	India Street	19th Street	Class II		1.25	1.25
4	University Avenue	1st Avenue	5th Avenue	Class II	Class III	0.20	1.36
	5th Avenue	University Avenue	Laurel Street	Class II		1.16	
5	Bachman Place	Hotel Circle S.	0.42 miles south of Hotel Circle S.	Class II		0.42	1.29
	Bachman Place	0.42 miles south of Hotel Circle S.	Lewis Street	Bicycle Boulevard		0.30	
	Lewis Street	1st Avenue	3rd Avenue	Bicycle Boulevard		0.07	
	1st Avenue	Lewis Street	University Avenue	Bicycle Boulevard		0.25	
	3rd Avenue	Lewis Street	University Avenue	Bicycle Boulevard		0.25	
6	Morena Boulevard	W. Morena Boulevard	Taylor Street	Class II		0.68	2.02
	Napa Street (spur)	Morena Boulevard	Linda Vista Road	Class II		0.09	
	Taylor Street	Pacific Highway	Morena Boulevard	Class II	Class III	0.32	
	Pacific Highway	Ocean Beach Bike Path	Sports Arena Boulevard	Cycle Track	Class II	0.93	
7	El Cajon Boulevard	Utah Street	43rd Street	Class II		1.79	1.92
	43rd Street	Meade Avenue	El Cajon Boulevard	Class III		0.13	
8	West Ash Street	North Harbor Drive	Kettner Boulevard	Class III		0.23	0.50
	Ash Street	3rd Avenue	8th Avenue	Class III		0.27	
9	A Street	India Street	8th Avenue	Class III		0.63	0.63
10	Washington Street	University Avenue	Normal Street	Class II		1.60	2.18
	Normal Street	Washington Street	Park Boulevard	Class II		0.19	
	Park Boulevard	El Cajon Boulevard	Madison Avenue	Class II		0.39	
11	54th Street	Montezuma Road	Collwood Boulevard	Class III		0.89	1.06
	54th Street	Collwood Boulevard	El Cajon Boulevard	Class II	Class III	0.07	

Table 6.3: 40 Top Priority Bicycle Projects

Rank	Roadway	From:	To:	Proposed Facility	Existing Facility	Segment Miles	Project Miles
	Collwood Boulevard	Monroe Avenue	54^{th} Street	Class II	Class III	0.10	
12	5th Avenue	Laurel Street	Broadway	Class II	Class III	1.08	1.77
	5th Avenue	Broadway	Harbor Drive	Class III		0.69	
13	Villa La Jolla Drive	Gilman Drive (N)	Gilman Drive (S)	Class II	Class III	0.98	0.98
14	4th Avenue	Washington Street	Upas Street	Class II		0.64	1.43
	4th Avenue	Upas Street	Juniper Street	Class III		0.79	
15	Cedar Street	Pacific Highway	8th Avenue	Class II		0.80	0.80
16	University Avenue	Texas Street	Fairmount Avenue	Class II		2.25	3.15
	43rd Street	El Cajon Boulevard	University Avenue	Class II		0.38	
	Fairmount Avenue	Meade Avenue	University Avenue	Class II		0.52	
17	La Jolla Village Drive	Regents Road	0.32 miles west of Nobel Drive	Class II		1.30	1.48
	Judicial Drive	La Jolla Village Drive	Golden Haven Drive	Class II		0.18	
18	Texas Street	Madison Avenue	University Avenue	Class II		0.86	2.00
	University Avenue	Florida Street	Texas Street	Class II		0.64	
	Florida Street	University Avenue	Upas Street	Class II		0.50	
19	Mira Mesa Boulevard	Parkdale Avenue	Reagan Road	Class II		0.38	1.23
	Mira Mesa Boulevard	Marbury Avenue	Interstate 15	Class II		0.83	
20	K Street	3rd Avenue	7th Avenue	Class II		0.21	0.43
	K Street	10th Avenue	14th Street	Class II		0.22	
21	G Street	Harbor Drive	State Street	Class III		0.39	1.83
	State Street	G Street	Market Street	Class III		0.08	
	Market Street	Harbor Drive	Union Street	Class III		0.16	
	Union Street	Market Street	Island Avenue	Class III		0.07	
	Front Street	Island Avenue	Harbor Drive	Bicycle Boulevard		0.08	
	Island Avenue	Union Street	Interstate 5	Bicycle Boulevard		1.05	
22	Washington Street	India Street	0.1 miles east of India Street	Class II		0.10	1.96
	India Street	Washington Street	Olive Street	Class II		0.89	
	India Street	Laurel Street	C Street	Class III		0.97	
23	State Street	Laurel Street	G Street	Class III		1.30	1.30
24	Bayshore Bikeway	Embarcadero Path	National City city limit	Class I		3.24	3.24
25	Ruffin Road	Kearny Villa Road	Aero Drive	Class II		2.30	2.30
26	El Cajon Boulevard	43rd Street	Montezuma Road	Class II		2.99	2.99
27	La Jolla Village Drive	Gilman Drive	Regents Road	Class II		1.25	1.25
28	Sassafras Street	Pacific Highway	India Street	Class II		0.15	1.94
	Pacific Highway	Sassafras Street	Harbor Drive	Cycle Track	Class III	1.79	
29	8th Avenue	Date Street	J Street	Class II		0.94	0.94
30	University Avenue	Fairmount Avenue	La Mesa city limit	Class II		3.16	3.16
31	Mission Boulevard	Grand Avenue	Pacific Beach Drive	Class II		0.27	1.59
	Mission Boulevard	Pacific Beach Drive	W. Mission Bay Drive	Bicycle Boulevard		1.32	

Table 6.3: 40 Top Priority Bicycle Projects

Rank	Roadway	From:	To:	Proposed Facility	Existing Facility	Segment Miles	Project Miles
32	Sports Arena Boulevard	Ocean Beach Bike Path	Rosecrans Street	Class II		1.24	3.12
	Sports Arena Boulevard	Rosecrans Street	Pacific Highway	Class III		0.50	
	Pacific Highway	Sports Arena Boulevard	Sassafras Street	Cycle Track	Class II	1.38	
33	La Jolla Boulevard	Turquoise Street	Mission Boulevard	Class II	Class III	0.33	1.32
	Mission Boulevard	Turquoise Street	Grand Avenue	Class II	Class III	0.99	
34	6th Avenue	Upas Street	C Street	Class II	Class III	1.67	2.40
	6th Avenue	C Street	Harbor Drive	Class III		0.73	
35	Main Street	Cesar E. Chavez Parkway	26th Street	Class III		0.63	1.43
	26th Street	Boston Avenue	Main Street	Class III		0.04	
	Boston Avenue	26th Street	29th Street	Class III		0.38	
	Boston Avenue	29th Street	32nd Street	Class I		0.38	
36	Morena Boulevard	Gesner Street	W. Morena Boulevard	Class II		1.23	2.24
	Morena Boulevard	W. Morena Boulevard	Tecolote Road	Class II	Class III	0.28	
	W. Morena Boulevard	Morena Boulevard	Linda Vista Road	Class II		0.73	
37	14th Street	C Street	Market Street	Class III		0.36	1.53
	14th Street	Market Street	Commercial Street	Class II		0.43	
	National Avenue	Commercial Street	Cesar E. Chavez Parkway	Class III		0.52	
	Cesar E. Chavez Parkway	National Avenue	Harbor Drive	Class II		0.22	
38	San Diego River Bike Path	Western terminus of S. San Diego River Bike Path (near Camino de la Reina)	Hotel Circle Place	Class I		1.69	2.42
	Fashion Valley Road	Friars Road	Hotel Circle N.	Class II		0.54	
	Hotel Circle N.	Fashion Valley Road	Hotel Circle S.	Class II		0.16	
	Hotel Circle S.	Hotel Circle N.	0.03 miles south of Hotel Circle N.	Class II		0.03	
39	W. San Ysidro Boulevard	Dairy Mart Road	Southern terminus of San Ysidro Boulevard	Class II		2.35	2.35
40	Ingraham Street	Beryl Street	Pacific Beach Drive	Class II		0.88	2.69
	Pacific Beach Drive	Ingraham Street	Eastern terminus of Pacific Beach Drive	Bicycle Boulevard		0.82	
	Rose Creek Bike Bridge	Eastern terminus of Pacific Beach Drive	Western terminus of N. Mission Bay Drive	Class I		0.04	
	Rose Creek Bike Path extension	Southern terminus of Rose Creek Bike Path	Western terminus of N. Mission Bay Drive	Class I		0.57	
	Crowne Point Drive	Pacific Beach Drive	Lamont Street	Bicycle Boulevard		0.38	

Source: Alta Planning + Design, February 2010

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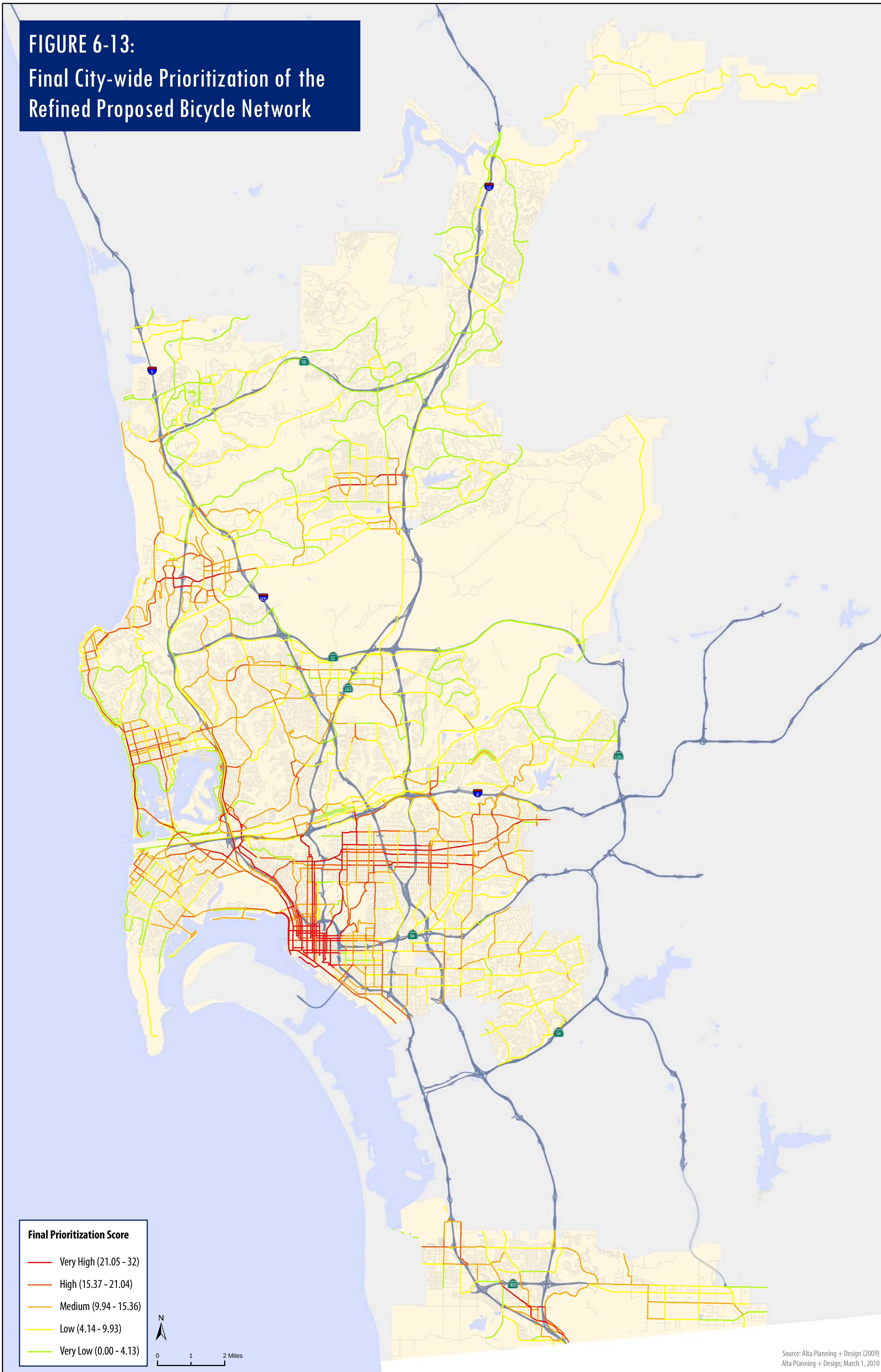

FIGURE 6-13:
Final City-wide Prioritization of the Refined Proposed Bicycle Network

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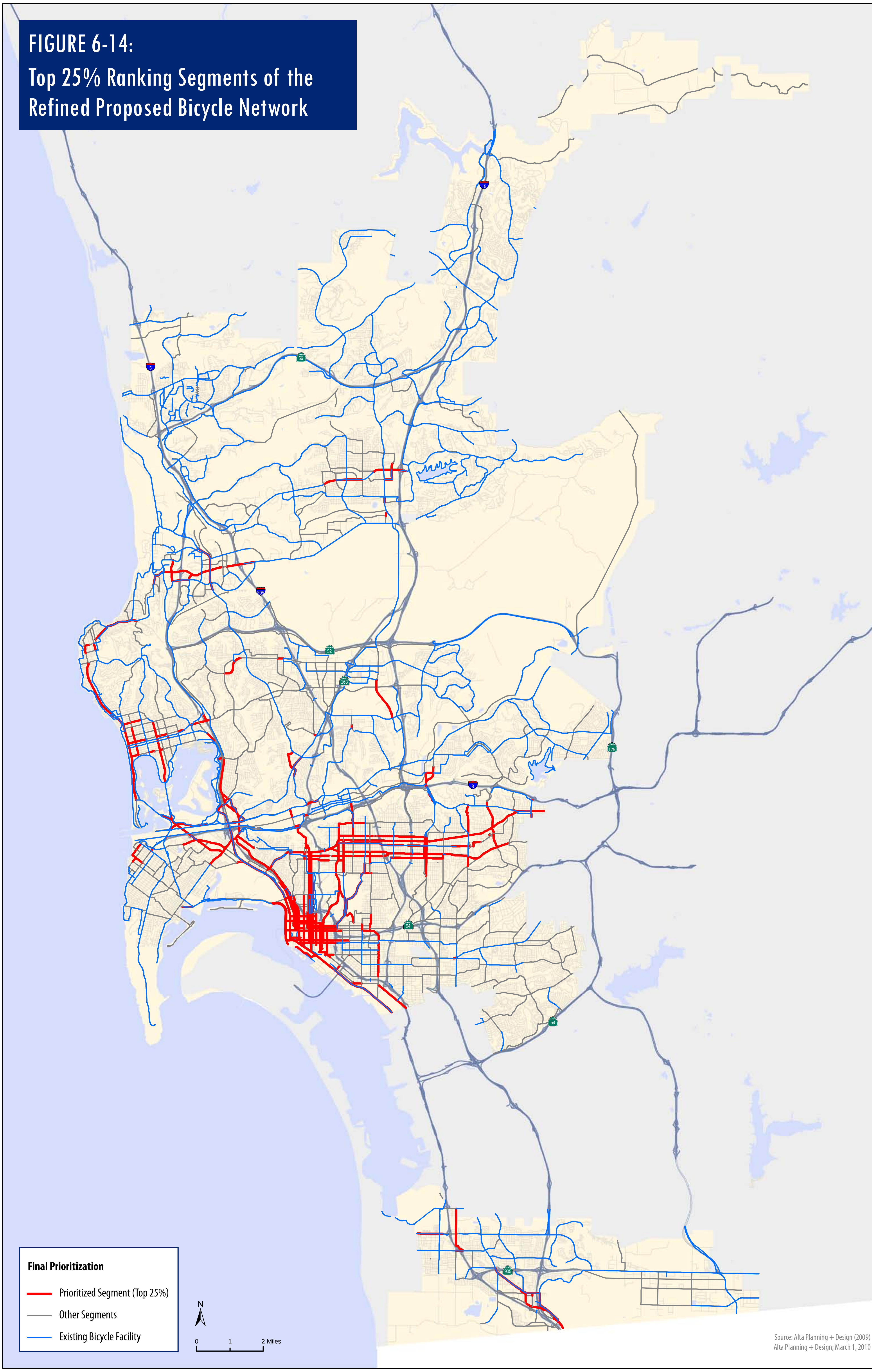
FIGURE 6-14: Top 25% Ranking Segments of the Refined Proposed Bicycle Network



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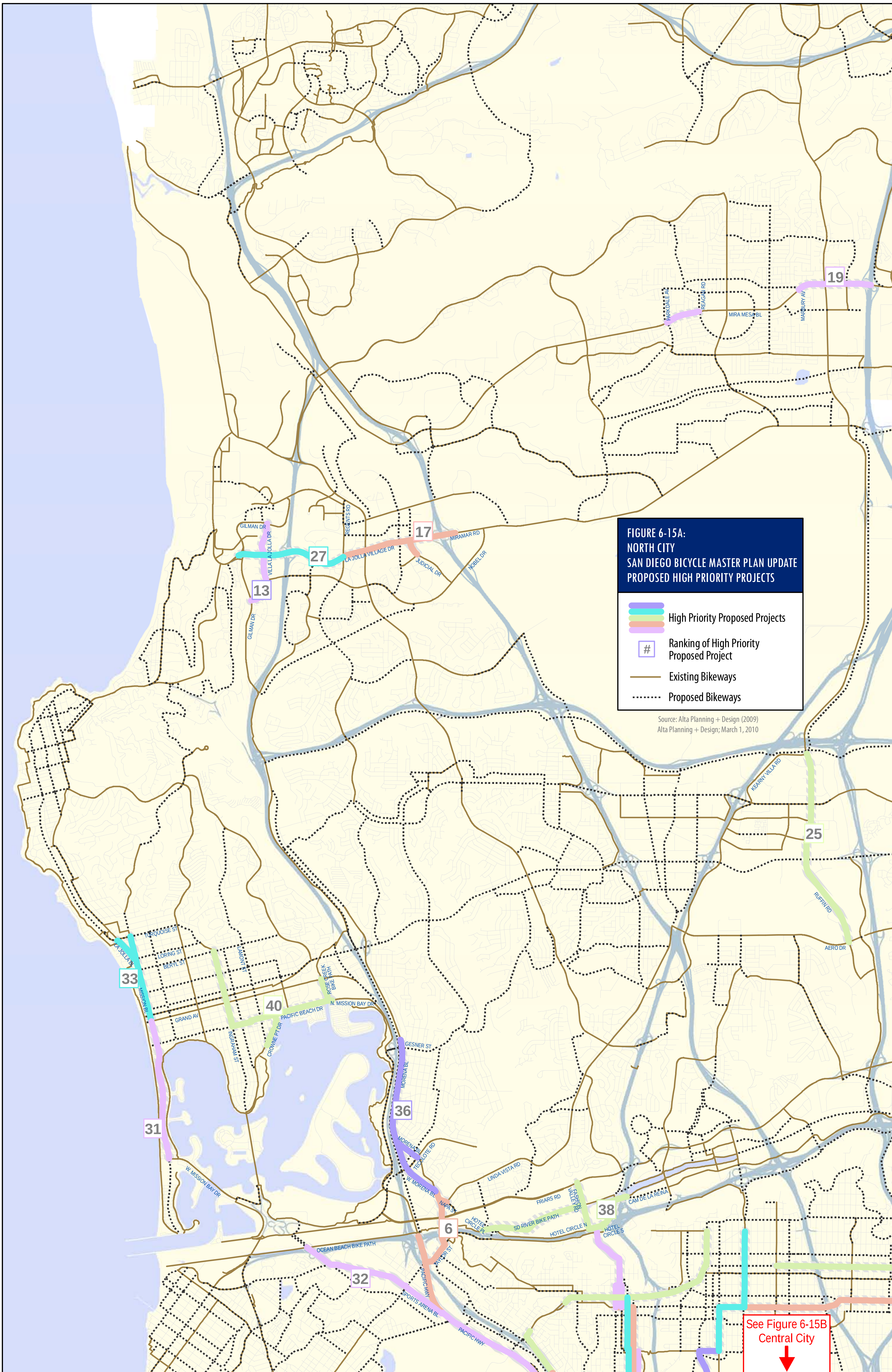
FIGURE 6-15A:
NORTH CITY
SAN DIEGO BICYCLE MASTER PLAN UPDATE
PROPOSED HIGH PRIORITY PROJECTS
High Priority Proposed Projects
Ranking of High Priority Proposed Project
Existing Bikeways
Proposed Bikeways
Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010
See Figure 6-15B Central City
19
17
27
13
25
33
40
36
31
38
6
32
GILMAN DR
VILLA LA JOLLA DR
LA JOLLA VILLAGE DR
REGENTS RD
MIRAMAR RD
JUDICIAL DR
NOBEL DR
MIRA MESA BL
REAGAN RD
PARKDALE AV
MARBURY AV
KEARNY VILLA RD
RUFFIN RD
AERO DR
TURQUOISE ST
LORING ST
BERYL ST
LA JOLLA BL
MISSION BL
GRAND AV
INGRAHAM ST
CROWNE PT DR
PACIFIC BEACH DR
N. MISSION BAY DR
ROSE CREEK BIKE PATH
GESNER ST
MORENA BL
W. MISSION BAY DR
TECOLOTE RD
W. MORENA BL
LINDA VISTA RD
FRIARS RD
FASHION VALLEY RD
CAM DE LA REINA
SD RIVER BIKE PATH
HOTEL CIRCLE N
HOTEL CIRCLE S
HOTEL CIRCLE PL
NAPA ST
OCEAN BEACH BIKE PATH
PACIFIC HWY
SPORTS ARENA BL

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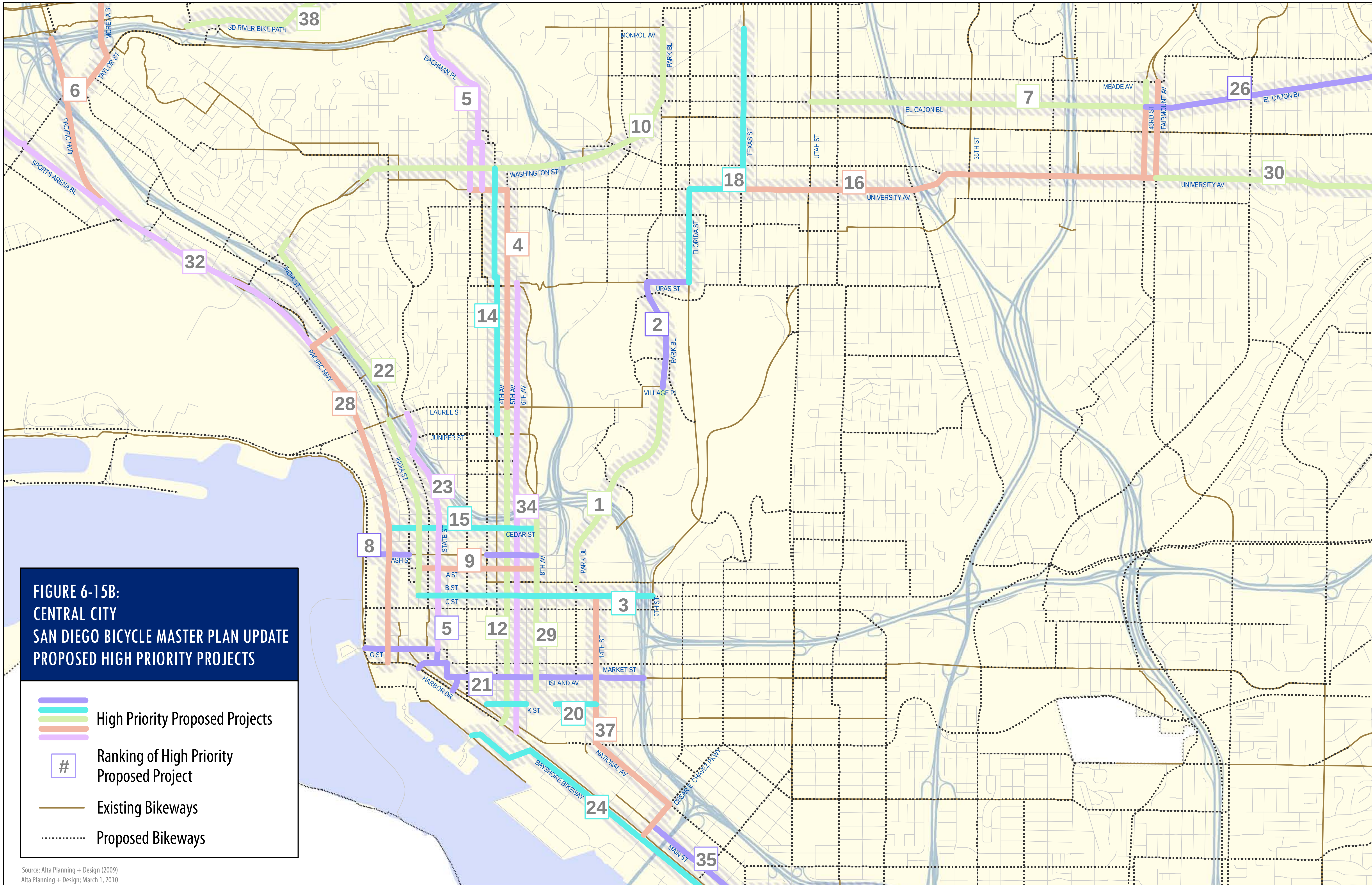

FIGURE 6-15B:
CENTRAL CITY
SAN DIEGO BICYCLE MASTER PLAN UPDATE
PROPOSED HIGH PRIORITY PROJECTS
High Priority Proposed Projects
#
Ranking of High Priority Proposed Project
Existing Bikeways
Proposed Bikeways
Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010
SD RIVER BIKE PATH
MORENA BL
TAYLOR ST
PACIFIC HWY
SPORTS ARENA BL
BACHMAN PL
MONROE AV
PARK BL
TEXAS ST
UTAH ST
EL CAJON BL
MEADE AV
43RD ST
FAIRMOUNT AV
35TH ST
WASHINGTON ST
UNIVERSITY AV
FLORIDA ST
UPAS ST
VILLAGE PL
INDIA ST
LAUREL ST
JUNIPER ST
4TH AV
5TH AV
6TH AV
CEDAR ST
STATE ST
ASH ST
A ST
B ST
C ST
8TH AV
19TH ST
14TH ST
MARKET ST
ISLAND AV
G ST
HARBOR DR
K ST
NATIONAL AV
CESAR E CHAVEZ PKWY
BAYSHORE BIKEWAY
MAIN ST
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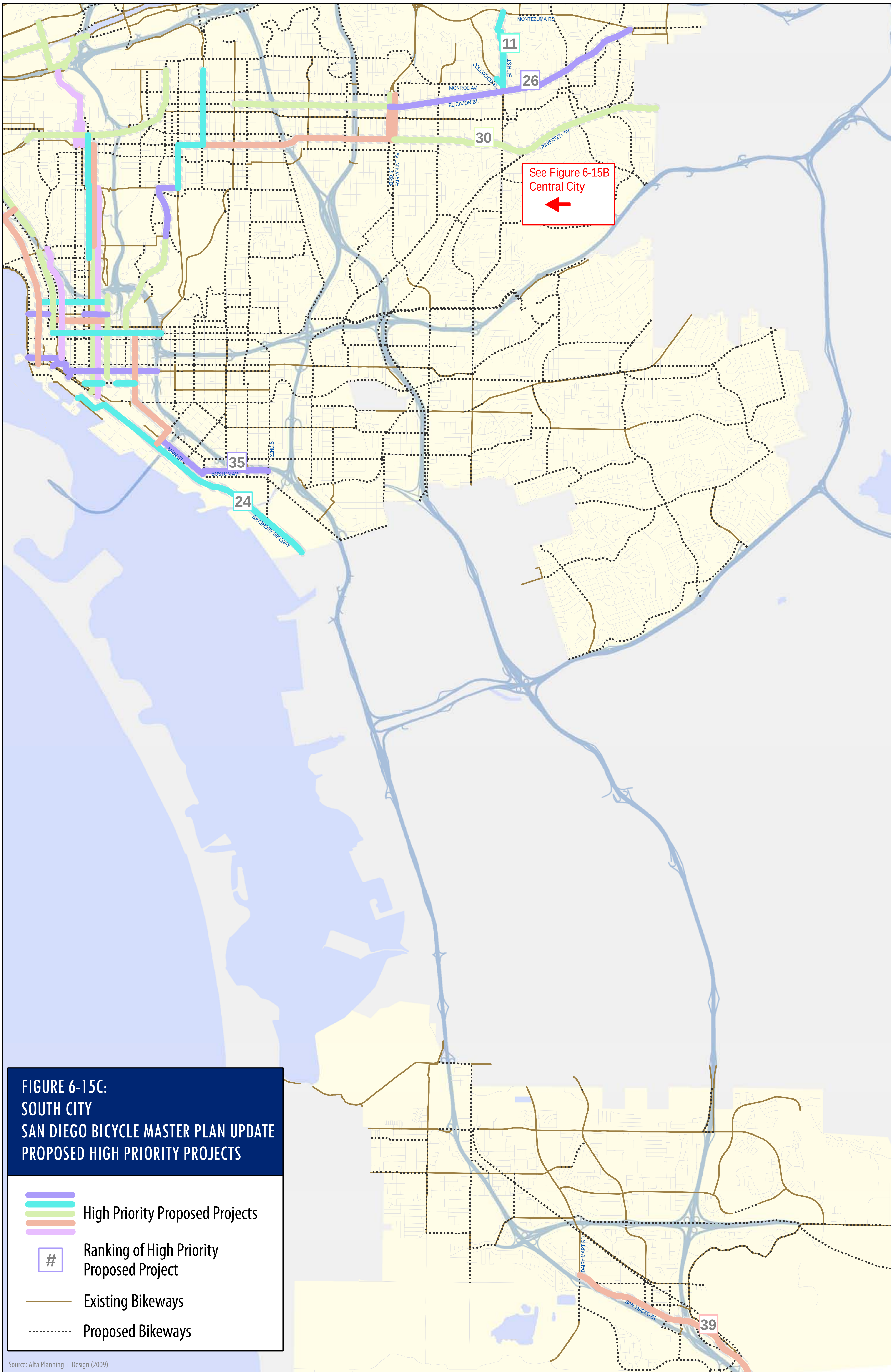

FIGURE 6-15C:
SOUTH CITY
SAN DIEGO BICYCLE MASTER PLAN UPDATE
PROPOSED HIGH PRIORITY PROJECTS

Source: Alta Planning + Design (2009)
Alta Planning + Design; March 1, 2010

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Proposed Bicycle Parking and Other Support Facilities

Support facilities are essential components of a bicycle system. Support facilities, such as bicycle parking racks, and showers and lockers for employees, further improve safety and convenience for bicyclists. Support facility recommendations presented in this chapter are divided into the following six categories: bicycle parking, end-of-trip amenities, maintenance, bicycle signal detection, signage and striping, and multimodal connections.

Bicycle Parking

Additional parking facilities are proposed in new and existing commercial, retail, and employment areas. Bicycle parking recommendations include the City's standard inverted-U bike racks, lockers, high-capacity bike parking such as corrals, and a proposed bike station at the Santa Fe Depot. Some of these recommendations would be implemented by the City of San Diego as the lead agency, and other recommendations, such as bike locker retrofits and upgrades, may be undertaken by SANDAG and require coordination with the City of San Diego.

Bicyclists need secure, well-located bicycle parking to support nearly all utilitarian and many recreational bicycle trips. Lack of parking can be a major obstacle to using a bicycle. Over the last several years, the City has installed bicycle racks by request on sidewalks throughout the city however there are still many locations where parking is either insufficient or lacking. A robust bicycle parking program is one of the most important strategies that jurisdictions can apply to enhance the bicycling environment. The program can improve the bicycling environment and increase the visibility of bicycling in a relatively short time.

Public bicycle parking programs can also be coordinated with property owners of commercial buildings to supply parking for employees and visitors. The City has an existing ordinance that requires bicycle parking in new commercial developments.

Continue to Expand the Availability of Short-Term Bicycle Parking

In addition to responding to citizens' requests for bicycle racks in the public right-of-way, the City should expand the program to include a schedule for installing bicycle parking based on proximity to land uses that attract bicycle trips including transit hubs and activity centers. Figures 3-4, 3-5 and 3-6 in Chapter 3 display key transit and activity centers where bike parking and end-of-trip amenities are expected to be present. The City should complete an inventory of bike parking currently underway, regularly update this inventory, continue securing funding to install bike parking, and develop a schedule to install bike parking in all locations identified in Figures 3-4, 3-5 and 3-6 that lack bike parking facilities.

The City should also include bicycle storage standards in the *City of San Diego Standard Drawings* or *City of San Diego Landscape Technical Manual* for implementation at major employment centers, schools, transit centers, park-and-ride lots, bus routes, shopping centers, stadiums, and public and semi-public recreational areas.

Bicycle parking requirements specified in the Municipal Code Sections 142.0525, 142.0530, and 142.0560 and any other applicable regulations are imposed upon all new development projects. The City should continue to ensure compliance with these regulations through the development review process.

High Volume Bicycle Parking

Where bicycle parking demand is high, more formal structures and larger facilities should be provided. Several options for high-volume bicycle parking are outlined below.

ON-STREET BIKE PARKING CORRAL

A relatively inexpensive solution to providing high-volume bicycle parking is to convert one or two on-street motor vehicle parking spaces into on-street bicycle parking. Bike racks are installed in the street and protected from motor vehicles with removable curbs and bollards. These facilities move bicycles off the sidewalks, and leave space for sidewalk café tables or pedestrians. Bicycle parking does not block sightlines like motor vehicles do, so it may be possible to locate bicycle parking in no-parking zones near intersections and crosswalks.

BIKE OASIS

Bike oases are installed on curb extensions and consist of attractive covered bike parking and an information panel. Portland's Bike Oases provide parking space for ten bikes. Bike and walking maps are installed on the information panel.

SANTA FE DEPOT BIKE STATION

Bike stations serve as one-stop bicycle service centers for bicycle commuters. They include 24-hour secure bicycle parking and may provide additional amenities such as a store to purchase items (helmets, raingear, tubes, patch kits, bike lights, and locks), bicycle repair facilities, showers and changing facilities, bicycle rentals, and information about biking. Some bike stations provide free bike parking, while others charge a fee or require membership.

Bike Station in Long Beach, California

Bike stations have been installed in several cities in California, including Long Beach, San Francisco, Los Angeles and Berkeley, as well as Chicago, and Seattle.

A bike station at the Santa Fe Depot is proposed to serve the large number of commuters who work in the downtown area. The Santa Fe Depot is a historic site that serves as a regional and local transit hub, with San Diego Trolley service, a Coaster station, and an Amtrak Station. In addition, to its multimodal significance, this site is ideal for a bike station because it is situated in the downtown business district and offers attractive outdoor and indoor public areas. There are currently bike racks and two SANDAG bike lockers located at the station, which provide four locker spaces for bicyclists. Establishment of a bike station would provide additional bike parking as well as other amenities that would help to support bicyclists as they commute and make connections to other modes of transportation.

The following amenities should be considered for the bike station:

- Attended bicycle parking
- Bicycle rental establishment
- Accessory shop
- Bicycle repair shop
- Changing rooms
- Shower and locker facilities

End-of-Trip Facilities

End-of-trip facilities such as restrooms, changing rooms, showers and storage for bicycling clothes (helmet and other gear) are especially important for cyclists who commute to work.

The City will continue to implement its requirements for showers and lockers specified in the Municipal Code Sections 142.0530, and these shall be imposed upon all new development projects. Specific locations of proposed bicycle amenities are not mapped in this Bicycle Master Plan. Future amenities locations will be identified as the municipal code is enforced on individual development projects.

In order to ensure bicycle parking and amenity requirements are met per the Municipal Code, the City should evaluate the development review process and forms, and if necessary, make changes to the process to strengthen compliance with bicycle facility requirements. Improving the process may also include specific trainings for Development Services' personnel to better integrate bicycle facility requirements into the development review process.

Maintenance

Public workshop participants identified improved maintenance of San Diego's bikeways as a high priority. Both on-street and off-street bikeways require regular maintenance. Typical tasks include repairing damaged and potholed roadway surfaces, clearing plant overgrowth and debris and sweeping bike lanes and paths. Although these tasks are generally associated with routine roadway maintenance, on-street bikeways require specialized maintenance and, in general, greater attention to detail. Bicycles are more susceptible than motor vehicles to roadway irregularities such as potholes and loose gravel. For example, after repaving, a roadway lip between a gutter pan and asphalt does not affect a motor vehicle, but can easily catch a bicycle tire and possibly result in a cyclist losing control of the bicycle.

Develop a Maintenance Policy that Addresses the Special Needs of Bicyclists

The City's Street Division routinely sweeps streets based on schedules that can be viewed and downloaded from the City's website (http://www.sandiego.gov/street-div/sweepschedule.shtml). Maintenance schedules should also be developed for Class I bike paths. Resurfacing specifications should be developed and maintained as the City performs street improvements or when companies require the trenching of certain streets for a period of time. Compaction standards should also be developed to ensure that the settlement of pavement does not occur, especially within zones that have been trenched for some purpose.

Maintenance requirements for all roadways in the City are outlined in the City of San Diego's Standard Drawings. Maintenance access on Class I bike paths should be achieved using standard City pick-up trucks on the pathway itself. Sections with narrow widths or other clearance restrictions should be clearly marked. Class I bike path maintenance includes cleaning, resurfacing and restriping the asphalt path, repairs to crossings, cleaning drainage systems, trash removal, and landscaping. Underbrush and weed abatement should be performed once in the late spring and again in mid-summer. In addition, these same maintenance treatments should be performed on Class II and Class III facilities. These facilities should be prioritized to include an accelerated maintenance plan that is already a part of the City's ongoing street maintenance. A maintenance schedule and checklist is provided in **Table 6.4**.

Table 6.4: Bikeway Maintenance Check List and Schedule

Item	Frequency
Sign Replacement/Repair	1 - 3 years
Pavement Marking Replacement	1 - 3 years
Tree, Shrub & grass trimming/fert.	5 months - 1 year
Pavement sealing/potholes	5 - 15 years[1]
Clean drainage system	1 year
Pavement sweeping	Weekly-Monthly/As needed
Shoulder and grass mowing	Weekly/As needed
Trash disposal	Weekly/As needed
Lighting Replacement/Repair	1 year
Graffiti removal	Weekly-Monthly/As needed
Maintain Furniture	1 year
Fountain/restroom cleaning/repair	Weekly-Monthly/As needed
Pruning	1 - 4 years
Bridge/Tunnel Inspection	1 year
Remove fallen trees	As needed
Weed control	Monthly/As needed
Remove snow and ice	Weekly/As needed
Maintain emergency telephones, CCTV	1 year
Maintain irrigation lines	1 year
Irrigate/water plants	Weekly-Monthly/As needed

Source: Alta Planning + Design, February 2010

Trenching has become a major issue regarding roadway and bikeway maintenance in the City of San Diego. Trenching most often occurs in the bicyclists' path of a street and/or in the bike lane on those streets that have these facilities. The typical construction location in the roadway makes trenching a major maintenance issue for bicyclists. Field inspection should be increased to ensure that the condition of post-construction roadway surfaces is the same or better than the surface condition before construction commenced.

Utility and fiber-optic company trenching should be coordinated so that the number of trenching activities is minimized. Construction treatments for bicyclists should be implemented during times of construction activities that affect bicycle travel on streets.

Detour and warning signage should be implemented, and efforts to maintain riding space for bicyclists should be made through construction zones.

When streets are resurfaced, the City's Street Division should coordinate with the Traffic Engineering Division to determine the best striping plan for streets when they are restriped after resurfacing projects. If a segment of roadway slated to be resurfaced is identified as a proposed bikeway in the Bicycle Plan, efforts should be made to provide space for bicycle travel either as a Class II bike lane or a Class III bike route with a widened curb lane.

Roadways that are regularly traveled by bicyclists should be swept more frequently and otherwise maintained regardless of whether a specific bikeway designation exists on those roadways.

The City of San Diego should also consider the following specific measures when evaluating its street maintenance and repair policies to ensure that they reflect the needs of bicyclists:

Street sweeping. As motor vehicles travel along the roadway, debris is pushed to the outside lanes and shoulder. Debris also collects at the center of intersections. Street sweeping on these roadways should include removing debris on the shoulder and at intersections.

Minor repairs and improvements. Potholes and cracks along the shoulder of roadways primarily affect bicyclists and should be repaired within a timely manner. All repairs should be flush to the existing pavement surface.

Street resurfacing. When streets with bikeways are resurfaced, utility covers, grates and other in-street items should be brought up to the new level of pavement. Similarly, the new asphalt should be tapered to meet the gutter edge and provide a smooth transition between the roadway and the gutter pan.

Calibrate bicycle loop detectors. As part of general maintenance, the City should test and calibrate bicycle-sensitive loop detectors to ensure that they are working properly. Loop detectors are described in more detail below.

Actively coordinate with maintenance workers. The City should ensure that maintenance workers are aware of new bicycle related maintenance policies. Maintenance workers should be involved in the development of bicycle related maintenance policies in order to ensure that City staff and maintenance workers understand each other's needs and limitations. After establishing policies, the City should follow up with the maintenance staff to verify compliance and to modify policies or provide additional support, if necessary, to ensure future compliance.

Develop a Funding Source for the Bicycle Facility Maintenance Program

Bicycling is an integral part of San Diego's transportation network, and maintenance of the bikeway network should be part of the ongoing maintenance program for all City transportation facilities. As such, bikeway network maintenance should receive an appropriate allocation of the City's transportation maintenance funds.

Bicycle Signal Detection

In-pavement loop detectors are used at signalized intersections to trigger a traffic light when a roadway user approaches the intersection. California law (AB 1581) requires that all new traffic actuated traffic signals respond to the presence of bicycles and motorcyclists. The City of San Diego has received TDA/TransNet funding to install bicycle detection systems and pavement markings at 20 signalized intersections in San Diego to improve bicycling safety. The following recommendations are intended to build on the City's bicycle detection at signalized intersections.

Continue to Install Bicycle Loop Detectors at Signalized Intersections

The City should continue to seek funding, install and mark the location of bicycle loop detectors at intersections, particularly during roadway construction.

Apply Pavement Stenciling Above Bicycle Loop Detector Stenciling Where Service Must be Actuated by Detection

Since most bicyclists do not know where to position themselves in order to trigger a loop detector, it is necessary to mark a pavement stencil that shows cyclists where to stop to activate the loop. The City is already stenciling bicycle loop detector pavement markings in conjunction with the 20 detection systems under construction. Stencils should be repainted when needed. As opportunities arise, loop detector stencils should be installed in coordination with striping maintenance or resurfacing projects.

Standard destination signs can be customized to reflect San Diego's character

Standard bicycle detection markings should be applied in the center of the appropriate lane for all bicycle loop locations to show cyclists the best place to wait (For inductive detection this implies that the loop must sense bicycles in its center). As part of the loop detector testing program, the City should ensure that the markings are placed in the proper location above the detector. The State standard bicycle detection marking appears on Caltrans Standard Plan A24C.

To increase understanding about how to use bicycle loop detectors, the City may want to include information about how to activate a bicycle loop detector in its bicycle educational materials.

Regularly Calibrate Bicycle Loop Detectors

While bicycle detector loops facilitate faster and more convenient bicycle trips, if they aren't calibrated properly, or stop functioning, they can frustrate cyclists waiting for signals to change, unaware that the loop is not working. The City should ensure that all bicycle loops are tested and are calibrated and operable as part of routine signal maintenance.

Signage and Striping

All bikeway signage on public roadways in San Diego should conform to the signage identified in the *2010 California Manual on Uniform Traffic Control Devices (California MUTCD).* These documents give specific information on the type and location of signing for bicycle facilities in California.

Innovative signage can be developed for a number of reasons – as a standardized warning system, to assist with unique way-finding, or to help lend a sense of place to a community. Some innovative signage is developed to increase awareness that bicyclists may use the full travel lane and to alert motorists to the proper response. Any signs to be installed on public roadways in California must be approved by Caltrans. New experimental designs can be utilized after approval. This continuing process of developing better wayfinding or safety-warning signs is important for designing safer and more enjoyable bicycling facilities, as well as improving the overall transportation system.

"SHARE THE ROAD" Signage

For all Class III Bike Route implementation, the City should install "SHARE THE ROAD" signs (MUTCD W16-1) along with the standard "BIKE ROUTE" signage (MUTCD D11-1).

Designated Bikeway Signs

The installation of bikeway signs on all designated bicycle facilities is important to heighten motorist awareness of cyclists and help cyclists find their way. The City should ensure that all bikeways are signed per the *2010 California MUTCD*.

Bicycle Boulevard Signage

All recommended bicycle boulevards should be equipped with bicycle boulevard identification, wayfinding, and warning signage. The City should develop distinctive signage that identifies bicycle boulevards as such and encourages their use by bicyclists. Destination signage should also be used along bicycle boulevards to provide bicyclists with direction, distance or estimated travel times to key destinations including transit stations, commercial districts, recreational areas, schools and universities. The City should also install warning signs along bicycle boulevards to alert motorists and cyclists of road condition changes including turns in bicycle boulevards, ends of bicycle boulevards, upcoming traffic calming features, and traffic control devices.

The City should also consider modifying its existing wayfinding system so that it is more consistent and distinctive. A citywide wayfinding system could include all bikeway types including bicycle boulevards, and be similar in character to the bicycle boulevard signage. A signage plan, such as Oakland, California's, should be developed to ensure that the signage is complete, coherent and does not result in sign clutter.

Multi-Modal Connections

Connecting bicycles to transit consists of three key elements: providing bicycle access to transit stops, providing bicycle parking facilities at transit stops and accommodating bicycles on trains and buses. The City of San Diego can affect the first two of these three elements by ensuring that the proposed bikeway network connects to existing transit stops and providing bicycle parking at major train and bus transit stops.

Improve Bicycle Access to Major Transit Centers

Recommendations for improving bicycle access to transit stops include:

- All actuated traffic signals near San Diego's existing and future Trolley stations and major bus transfer centers should be able to be activated by cyclists. Actuation should be provided in left-turn lanes as well as through lanes. If the actuation is provided by a bicycle loop detector, a stencil should be placed over the loop detector instructing cyclists where to wait. If the actuation is provided by a push button, it should be oriented toward the street, and allow cyclists to push the button without dismounting.
- Streets in which transit stations are located should include bicycle facilities that are designed to ensure access to the transit station is safe, direct, and does not conflict with motor vehicles.
- Destination signs indicating direction and distance to transit stops should be located on sidewalks, bikeways, and major arterials.
- Local area maps showing bicycle and pedestrian facilities and local destinations should be posted at transit stations.
- Warning signs notifying drivers of bicycle and pedestrian crossing should be installed at transit stop driveway crossings, bikeway crossings, pathway crossings, and other places with potential user conflicts. Similarly, appropriate regulatory signage should be installed for cyclists and pedestrians.
- Safe, direct well-marked routes should be provided for cyclists and pedestrians through the station area to the platform, sidewalks, bikeways, ticketing area and bike parking.

Improve Bicycle Parking at Transit Stops

Providing ample secure bicycle parking at transit stops is essential to increasing bicycle mode share to transit. Bicycle parking, including racks and SANDAG lockers, is currently provided at San Diego transit stations.

In general, bicycle parking should be provided as close to bus stops as possible, without restricting pedestrian flow or ADA access. Signs should be placed directing cyclists to parking locations, and if "no bicycle parking" signs are used, they should be accompanied with signs directing cyclists to bicycle parking locations.

When evaluating bicycle parking demand, agencies should take into account the quality and placement of parking supplies. If underused bike parking is moved to a more secure, visible and convenient location, use of the parking may increase. The following improvements have been shown to increase bicycle parking usage:

- Moving bike racks and lockers to locations that are more visible to potential users;

- Moving bike racks to locations that are more convenient to other services, such as customer service windows;

- Improving signage to let transit passengers know the process for renting bicycle lockers; and

- Advertising bicycle parking services in local bicycle publications.

Figure 3-6 in Chapter 3 displays transit hubs in San Diego. The City should prioritize installing short- and long-term bike parking facilities at all transit hubs where currently lacking, as a part of an expanded City bicycle parking program proposed in the Bicycle Parking section of this chapter.

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VII. Program Recommendations

The bikeway projects and facility improvements recommended in the Bicycle Master Plan Update should be complemented by programs designed to educate people about bicyclists' rights and responsibilities and safe bicycle operation; connect current and future bicyclists to existing resources; encourage residents to bicycle more frequently; and monitor the performance of the bicycle system and programs.

This chapter outlines several potential programs the City could pursue, as well as programs the City currently provides and should continue. Recommendations presented in this chapter are divided into the following four categories: education programs, enforcement, encouragement programs, and monitoring and evaluation.

Education Programs

This section covers future efforts to educate bicyclists and motorists, and efforts to increase the use of bicycles as a transportation alternative. Most education and encouragement programs and activities will likely be cooperative efforts between City of San Diego departments, San Diego Unified School District, and local bicycle organizations such as the San Diego County Bicycle Coalition.

Continue and Expand Existing Education Programs

The City should continue to offer its existing programs including the Pedestrian and Bicycle Safety Education Program and Safety and Traffic Education Program which are described in Chapter 3, and should seek secure, regular funding sources to continue to support these programs.

In prior years, the City of San Diego obtained funding to help support adult bicycling courses provided by San Diego County Bicycle Coalition (SDCBC) League of American Bicyclists Certified Instructors. While the focus of the Safety and Traffic Education Program is to raise awareness and promote safe interactions between all roadway user groups, there is also a need for cycling courses that provide in-depth training on topics such as riding in traffic skills and hazard avoidance techniques. Learning how to ride safely encourages people to ride more confidently, more often, and along more routes.

Adult bicycling courses can be made available to individual members of the public such as the series offered by the SDCBC and also to existing groups such as employees of a local business, City employees, and university or college students.

Traffic Ticket Diversion Classes

The City should consider offering education in the form of ticket diversion programs where traffic offenders can take a course in lieu of citations or fines or in exchange for fee reductions. Classes are geared toward motorists, bicyclists, and pedestrians who are violators of bicycle and pedestrian-related traffic violations. Participants learn about laws pertaining to bicycle and pedestrian traffic and receive instruction on how to safely interact with other roadway user groups. Programs are frequently initiated through partnerships between city police or transportation departments and non-profit bicycle organization who conduct the trainings. These classes can be effective educational tools for people who demonstrate.

Safe Routes to School

The City of San Diego has been successful in securing Safe Routes to School grant funds to improve walking and bicycling conditions surrounding various schools, particularly in Mid-City and Southeastern neighborhoods. Robust Safe Routes to Schools programs use a variety of strategies to improve safety and encourage walking and bicycling to school. These strategies are often referred to as the "Four Es."

- Education: programs designed to teach children about traffic safety, bicycle and pedestrian skills, and traffic decision-making.
- Encouragement: programs that make it fun for kids to walk and bike. These programs may be challenges, incentive programs, regular events (e.g. "Walk and Bike Wednesdays") or classroom activities.
- Engineering (Design): physical projects that are built to improve walking and bicycling conditions.
- Enforcement: law enforcement strategies to improve driver behavior near schools.

Programs generally address the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and redesigning streets to be safer. Identifying and improving routes for children to walk or bicycle to school is one of the most effective means of reducing morning traffic congestion and addressing existing safety problems. Safe Routes to School efforts also promote health by encouraging active transportation. School commute programs that are joint efforts of the City, school district, with parent organizations adding an important element, are usually most effective.

The City should continue to pursue Safe Routes to School efforts and encourage schools in San Diego to conduct individual evaluations of school commute patterns, work with the City to identify corridor and crossing improvements within walking and biking distance of the school, and to identify improvements to the drop-off/pick-up system. School commute routes are local in nature and require extensive and detailed examination of patterns and conditions and local input. The Safe Routes to School program should continue to actively involve students' parents and should focus on making it safer for students to bicycle and walk to school.

Enforcement

In order to encourage safe cycling in San Diego, facility improvements must be accompanied by enforcement of California Vehicle Code regulations pertaining to bicycling. The City of San Diego currently enforces bicycle-related violations of the California Vehicle Code.

Support Police Department in Enforcement Efforts

The City of San Diego Police Department should continue to perform enforcement of vehicle statutes relating to bicycle operation. A particular focus should be on obstructions of bicycle facilities, individuals riding the wrong direction, or riding on the sidewalk, as these behaviors increase the chance that a cyclist will be involved in a collision. Enforcement of vehicle laws related to bicycling can serve as an educational tool, as some individuals may simply not understand that they are breaking the law and putting themselves at risk. The Police Department also offers online education "Safety Sam," geared toward children and traffic safety. The Police Department should consider attending local bicycle rodeos coordinated by non-profit and other organizations to answer questions and show support for the events (The Police Department enforcement and program efforts are briefly described in Chapter 3, Section 3, Education, Awareness and Enforcement Programs).

Encouragement Programs

Encouragement programs are vital to the success of the San Diego bicycle system. Encouragement programs' primary purpose is to persuade people to shift from driving to bicycling, which helps reduce traffic congestion and air pollution, as well as improve the quality of life in San Diego. Community support is needed to ensure the long-term success of encouragement programs. Strategies for community involvement will be important to ensure broad-based support – which translates into political support – to help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling can range from small incremental activities by non-profit groups, to efforts by the largest employers in the City. Specific programs are described below.

Bicycling Information Website

The City's website should include a bicycling information site that provides information about safety, reporting roadway and bikeway problems, the Bicycle Master Plan, bicycle facility construction updates, and links to other local resources, including the SANDAG iCommute website, local bicycling groups, classes, and events.

Bike Commuter Challenge Program

The City should consider developing a bike commute challenge program modeled after the Oregon-based Bicycle Transportation Alliance Bike Commute Challenge. These programs engage workplaces and employees in a friendly competition to see who can document the most bicycling or walking trips taken for commuting or other utilitarian purposes. Registration and trip tracking should be managed in a user-friendly online interface. Winners could be announced to the press during an annual wrap-up celebration. This program would complement the SANDAG iCommute Diamond Awards which honors organizations and individuals in the region that promote alternative travel options such as vanpooling, carpooling, use of public transit, walking, and biking and the iCommute Week Carpool Challenge.

Bike-to-Work and Bike-to-School Days

The City of San Diego should continue to participate in the annual Bike-to-Work day in May, in conjunction with the California bike-to-work week activities. City staff can host "energizer" stations along key local commuter routes. The City should also consider working with local schools and sponsoring or supporting local Walk and Bike to School days held annually in conjunction with schools' programs. This should include the International Walk and Bike to School Day, held in early October each year.

Sunday Parkways

Sunday Parkways, or ciclovías, are periodic street closures (usually held on Sundays) that create a temporary park that is open to the public for bicycling, walking, roller skating, dancing etc. They have been very successful at raising enthusiasm for alternative travel modes internationally and are gaining popularity in the US. The City of San Diego should consider working with local organizations to institute Sunday Parkways.

Sunday Parkways in Portland, Oregon

Monitoring and Evaluation

Monitoring and evaluating a city's progress toward becoming bicycle-friendly is critical to ensuring that programs and facilities are effective and to understanding changing needs. Maintaining consist staff positions, count programs, reporting on progress, and convening advisory committees are methods for monitoring efforts and for holding agencies accountable to the public.

Fund a City Bicycle Coordinator Position

To assist with implementation of the many projects and programs recommended in this chapter, the City should consider reinstating the full-time Bicycle Coordinator position, along with the City Bicycle Project Manager position. While staffing a full-time bicycle coordinator position may not currently be feasible for San Diego from a budgetary standpoint, this should be a long-term goal to ensure significant staff time is available to administer and advance the City's programmatic efforts. The job duties for this staff person would include overseeing future Bicycle Master Plan updates, coordinating a Bicycle Advisory Committee and administering the program recommendations listed here as well as expanding on these programs in the future.

Convene a Bicycle Advisory Committee

Create a Bicycle Advisory Committee (BAC) that will coordinate with various City agencies, schools, neighboring cities, SANDAG, community planning groups, and community organizations, and will provide input on bicycle issues in San Diego. The BAC should be composed of representatives from bicycling organizations, such as the San Diego County Bicycle Coalition, bicycle shops, riding clubs, transportation agencies, universities, colleges and community members at-large in order to provide perceptive from a broad cross-section of the bicycling community.

Count Program and Annual Report

The City should collect bicycle and pedestrian counts annually as a part of a regional effort to record bicycle and pedestrian activity levels. The bicycle and pedestrian count program should be administered annually and capture all types of bicycle and pedestrian trips including trips for recreation, commuting to work and for other utilitarian purposes. Bicycle and pedestrian counts and assessments should also be conducted whenever a local land development project requires a traffic impact study. A long-term financing source should be identified to guarantee the longevity of the program.

It is also recommended that the City participate in the National Bicycle & Pedestrian Documentation Project by following the data collection model and submitting data collected to contribute to this growing source of national data on bicycle and pedestrian usage. The City should also consider publishing or working with local agencies to produce bi-annual or periodic report cards similar to the San Francisco State of Cycling Report to document the City's progress toward increasing bicycle activity.

VIII. Implementation and Funding

This chapter is intended to support the implementation of this Plan's recommendations by providing the following information:

- An overview of bicycle-related expenditures between 2006 and 2009
- Planning level cost estimates for the entire proposed unbuilt network
- Detailed cost estimates for the 40 high priority projects
- Cost estimates for maintenance and operations
- An overview of funding sources that the City should pursue

Previous Bicycle-Related Expenditures

The City of San Diego has had several projects funded over the past four years. **Table 8.1** identifies specific projects funded since the year 2006, the communities in which they are located, and the amounts of the expenditures.

Table 8.1: City of San Diego Expenditures for Bikeways, 2006-2009

Project	Communities	Amount
54th Street and Euclid Avenue Bike Lanes and Routes	Southeastern San Diego, College Area	$130,000
Bayshore Bikeway	Otay Mesa/Nestor	$5,195,274
Beyer/East Beyer Boulevard Bikeway	San Ysidro	$66,000
Bicycle Parking at the Border	San Ysidro	$23,300
Bicycle Safety and Commuting Education Program	Citywide	$1,365,994
Camino de la Reina Bikeway	Mission Valley	$259,339
Camino del Rio North Bike Lanes	Mission Valley	$416,000
City Bicycle Master Plan	Citywide	$150,000
Coastal Rail Trail	Torrey Pines, University	$22,016,138
Darkwood Canyon Connector Study for SR-56 Bike Path	Rancho Penasquitos	$50,000
Fairmont Avenue/Camino del Rio South Traffic Signal and Striping Modifications	College Area	$86,000
Friars Road to Pacific Highway Bike Path	Linda Vista, Mission Valley	$714,518
Interstate 805 Bike Path Study	Mira Mesa	$40,000
Island Avenue/Market Street Bikeway	Southeastern San Diego	$115,000
Kearny Villa Road Bike Lane Improvements	Kearny Mesa	$300,000
Minor Bicycle Facilities	Citywide	$15,000
Mission Trails Bike Path Study	Mission Trails Regional Park, Navajo	$100,000
Ocean Beach Bike Path/Hotel Circle North Bikeway Design	Mission Valley, Ocean Beach	$2,550,000
Pacific Highway and Barnett Avenue Interchange Study	Peninsula	$40,000
Poway Road - Class I Bicycle Lane	Sabre Springs	$1,293,000
Rancho Bernardo Bikeway	Rancho Bernardo	$250,000
Rose Creek Bikeway	Mission Bay Park, Pacific Beach	$5,100,000

Table 8.1: City of San Diego Expenditures for Bikeways, 2006-2009

Project	Communities	Amount
Safety in Traffic Education Program (STEP)	Citywide	$20,000
San Diego River Bike Path – Bridge Study	Mission Valley	$50,000
San Diego River Bike Path - Mission Trails to Mission Bay	Mission Valley, Navajo	$276,500
San Diego River Multi-Use Path	Mission Valley	$827,999
San Pasqual Road Bikeway Study	San Pasqual Valley	$50,000
State Route 15 Bikeway	Mid-City	$1,003,869
State Route 52 Bike Path Study	University, Clairemont Mesa	$131,568
State Route 56 Bike Interchanges	Rancho Penasquitos, Pacific Highlands Ranch, Del Mar Mesa, Torrey Highlands, Black Mountain Ranch	$11,277,000
Taylor Street – Bikeway	Old San Diego	$250,000
Traffic Safety and Education Program	Citywide	$50,000
University Avenue at Alabama Street Bicycle and Pedestrian Safety Improvements	Greater North Park	$120,000
Via de la Valle Bikeway	Via de la Valle	$1,684,950
Vista Sorrento Parkway Bike Lanes	Mira Mesa, Torrey Pines	$607,500

Source: City of San Diego Website,http://www.sandiego.gov/fm/annual/index.shtml

Cost Estimate for the Proposed Unbuilt Network

Table 8.2 summarizes cost estimates for all unbuilt proposed bicycle network recommended in this Plan. Unit cost estimates were obtained from the draft 2010 San Diego Regional Bicycle Plan. The cost of completing the proposed bicycle network is estimated to be about $259 million for Class I bike path projects, $3.4 million for Cycle Track projects, $56 million for Class II bike lane and Class III bike route projects, and $5 million for Bicycle Boulevard projects, for a combined total system build out cost of about $323 million. Cost estimates include costs for survey and design, construction, administration and contingencies.

Table 8.2: Proposed Bicycle Network Cost Estimates

Facility Type	Unit Cost*	Miles of Unbuilt Proposed	Total Cost Estimate per Facility Type
Class I – Bike Path	$2,640,000	98.1	$258,984,000
Class II – Bike Lane	$30,000	41.3	$1,461,000
Class II – Bike Lane w/ Issues	$273,000	48.7	$1,461,000
Class III – Bike Route	$14,800	166.3	$2,461,240
Class II or III (TBD)	$273,000	147.7	$40,322,100
Bicycle Boulevard	$124,000	39.8	$4,939,180
Cycle Track	$451,200	7.6	$3,429,120
Total	--	549.5	$322,871,540

Source: Alta Planning + Design, March 2010

*Note: * Unit costs were obtained from the draft 2010 San Diego Regional Bicycle Plan (Table 6.2).*

40 Top Priority Project Cost Estimates

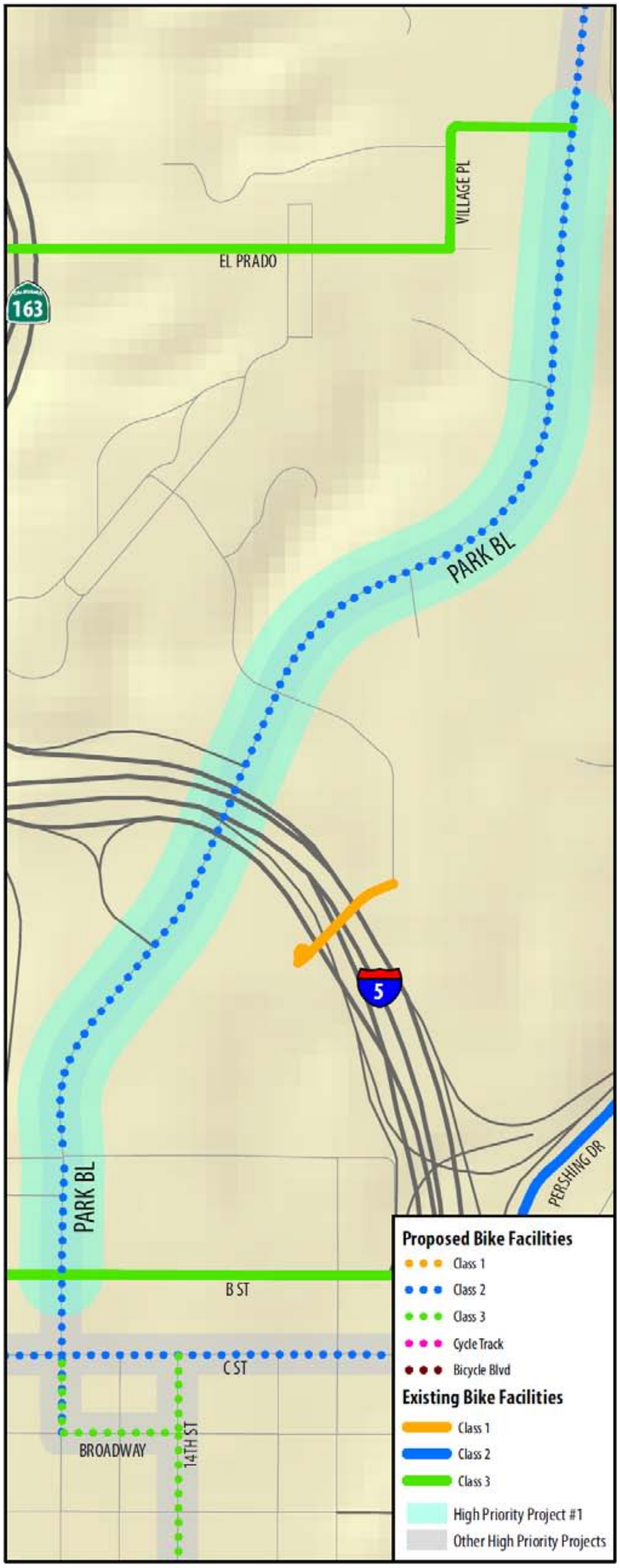
Table 8.3 displays cost estimates for the 40 Top Priority Bicycle Projects. As shown, the total cost for implementation of these projects would be approximately $29 million dollars. The following 40 Top Priority Project Sheets provide a project description, related issues, and the cost estimate for each of the 40 Top Priority Bicycle Projects.

Table 8.3: 40 Top Priority Project Cost Estimates

Project Number	Project Description	Cost
1	Park Boulevard: Village Place to B Street	$1,095,279
2	Upas Street: Park Boulevard to Florida Street; and Park Boulevard: Upas Street to Village Place	$622,059
3	C Street: India Street to 19th Avenue	$34,056
4	University Avenue: 1st Avenue to 5th Avenue; and 5th Avenue: University Avenue to Laurel Street	$129,818
5	Mission Valley to University Avenue Connection	$32,901
6	Linda Vista to Pacific Highway Connection	$2,519,885
7	El Cajon Boulevard: Utah Street to 43rd Street; and 43rd Street: Meade Avenue to El Cajon Boulevard	$291,675
8	West Ash Street: North Harbor Drive to Kettner Boulevard; and Ash Street: 3rd Avenue to 8th Avenue	$14,087
9	A Street: India Street to 8th Avenue	$9,532
10	Washington Street: University Avenue to Normal Street; Normal Street: Washington Street to Park Boulevard; and Park Boulevard: El Cajon Boulevard to Madison Avenue	$1,060,251
11	54th Street: Montezuma Road to El Cajon Boulevard; and Collwood Boulevard: Monroe Avenue to 54th Street	$28,218
12	5th Avenue: Laurel Street to Harbor Drive	$30,235
13	Villa La Jolla Drive: Gilman Drive (N) to Gilman Drive (S)	$540,669
14	4th Avenue: Washington Street to Juniper Street	$23,741
15	Cedar Street: Pacific Highway to 8th Avenue	$49,820
16	University Avenue: Texas Street to Fairmont Avenue; 43rd Street: El Cajon Boulevard to University Avenue; and Fairmont Avenue: Meade Avenue to University Avenue	$395,487
17	La Jolla Village Drive: Regents Road to I-805 NB On-ramp; and Judicial Drive: La Jolla Village Drive to Golden Haven Drive	$1,221,990
18	Texas Street: Madison Avenue to University Avenue; University Avenue: Florida Street to Texas Street; and Florida Street: University Avenue to Upas Street	$287,739
19	Mira Mesa Boulevard: Parkdale Avenue to Reagan Road; and Mira Mesa Boulevard: Marbury Avenue to I-15	$843,554
20	K Street: 3rd Avenue to 7th Avenue; and K Street: 10th Avenue to 14th Street	$28,831
21	Marina District to East Village – Along G Street, Market Street, and Island Avenue	$58,546
22	India Street: Washington Street to West C Street	$250,124
23	State Street: Laurel Street to West G Street	$24,430
24	Bayshore Bikeway: Embarcadero Path to National City city limit	$836,140
25	Ruffin Road: Kearny Villa Road to Aero Drive	$508,807
26	El Cajon Boulevard: 43rd Street to Montezuma Road	$318,551
27	La Jolla Village Drive: Gilman Drive to Regents Road	$212,391
28	Sassafras Street: Pacific Highway to India Street; and Pacific Highway: Sassafras Street to Harbor Drive	$3,487,441
29	8th Avenue: Date Street to J Street	$52,966
30	University Avenue: Fairmont Avenue to La Mesa city limit	$583,371
31	Mission Boulevard: Grand Avenue to West Mission Bay Drive	$237,224
32	Sports Arena Boulevard: Ocean Beach Bike Path to Pacific Highway; and Pacific Highway: Sports Arena Boulevard to Sassafras Street	$3,372,548
33	Mission Boulevard: Turquoise Street to Grand Avenue	$108,373
34	6th Avenue: Upas Street to Harbor Drive	$315,225
35	Main Street: Cesar E. Chavez Parkway to 26th Street; 26th Street: Boston Avenue to Main Street; and Boston Avenue: 26th Street to 32nd Street	$144,794
36	Morena Boulevard: Gesner Street to Tecolote Road; and West Morena Boulevard: Morena Boulevard to Linda Vista Road	$289,267
37	14th Street: C Street to Commercial Street; National Avenue: Commercial Street to Cesar E. Chavez Parkway; and Cesar E. Chavez Parkway: National Avenue to Harbor Drive	$50,744
38	Mission Valley San Diego River Bike Path	$6,244,528
39	San Ysidro Boulevard: Dairy Mart Road to the southern terminus of San Ysidro Boulevard	$222,157
40	Pacific Beach to Rose Creek	$2,174,419
	Total High Priority Project Costs	$28,751,873

Source: Alta Planning + Design, February 2010

Project 1 – Park Boulevard: Village Place to B Street



Project Description

This project serves bicycle demands between Balboa Park and Centre City by providing Class II bicycle facilities along Park Boulevard from Village Place in Balboa Park to B Street in downtown San Diego.

This high priority project is over a mile long and connects the relatively dense residential neighborhoods of Hillcrest and North Park to key downtown land uses, such as major employment and shopping centers, San Diego City College, and recreational and cultural land uses in Balboa Park. This bike facility follows portions of local bus Route 7 and provides connections to local bus Route 923 and the Blue Line and Orange Line City College trolley station.

Bicycling issues along this project corridor include relatively high travel speeds of approximately 40 mph, a difficult freeway crossing at I-5, and difficult topography on the north side of I-5. This segment has also had five reported bike crashes from 2002-2007, including two crashes at the Park Boulevard/SB I-5 Ramps intersection.

This high priority project ranked 1st of the top 40 with an average weighted prioritization score of 22.9 points.

Proposed Improvements

- Remove traffic striping (12,760 LF @ $1.65/LF)
- Remove Asphalt Concrete (8,932 SF @ $7/SF)
- Remove Concrete Curb (8,932 LF @ $15/LF)
- Remove Concrete Sidewalk (1,500 SF @ $8/SF)
- Install Asphalt Pavement (661 tons @ $120/ton)
- Install Concrete Curb (8,932 LF @ $30/LF)
- Install Concrete Paving (19 CY @ $1,000/CY)
- Roadside Signage (15 signs @ $400/EA)
- Class II and traffic striping (38,280 LF @ $1/LF)
- Class II pavement markings (16 markings @ 14 SF/marking = 224 SF @ $5/SF)
- Lighting (11 street lights $3,000/EA)
- Install Bicycle Detector Loops (10 detectors @ $1,000/EA)

Cost

$1,095,279

Project 1 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$70,210
2	Remove Traffic Stripe (LF)	$21,054
3	Remove Asphalt Concrete (SF)	$62,524
4	Remove Concrete Curb (LF)	$151,844
5	Remove Concrete Sidewalk (SF)	$12,000
6	Asphalt Pavement (Ton)	$79,320
7	Minor Concrete (Curb and Gutter) (LF)	$267,960
8	Minor Concrete (Island Paving)	$19,000
9	Roadside Sign - One Post (EA)	$6,000
10	Paint Traffic Stripe - Two Coat (LF)	$38,280
11	Paint Pavement Marking - Two Coat (SF)	$1,120
12	Lighting (City Street)	$33,000
13	Bicycle Detector Loop	$10,000
14	Mobilization (LS) 10%	$70,210
	Subtotal	$842,522
	Contingency (30%)	$252,757
	Total Construction	**$1,095,279**

Project 2 – Upas Street: Park Boulevard to Florida Street and Park Boulevard: Upas Street to Village Place

Project Description

This project serves bicycle demands between the Mid-City communities of North Park and Balboa Park by providing Class III bicycle facilities on Upas Street from Park Boulevard to Florida Street in North Park, and Class II bicycle facilities on Park Boulevard from Upas Street to Village Place in Balboa Park.

This high priority project is nearly a mile long and connects the relatively dense residential neighborhoods of Hillcrest and North Park with Balboa Park and key downtown land uses, including major employment and shopping centers, and San Diego City College. This project follows portions of local bus Route 7.

Bicycling issues along this project corridor include relatively high travel speeds of 40 mph along Park Boulevard and difficult topography along Upas Street. This segment has also had eight reported bike crashes from 2002-2007, including four crashes at the intersection of Park Boulevard and Morley Field Drive.

This high priority project ranked 2nd of the top 40 with an average weighted prioritization score of 21.5 points.

Proposed Improvements

- Remove traffic stripe (6,060 LF @ $1.65/LF)
- Remove asphalt concrete (5,454 SF @ $7/SF)
- Remove concrete curb (5,454 LF @ $17/LF)
- Install asphalt pavement (338 tons @ $120/ton)
- Install concrete curb (5,454 LF @ $30/LF)
- Roadside signage (12 signs @ $400/EA)
- Class II and traffic striping (18,180 LF @ $1/LF)
- Class II pavement marking (8 markings @ 14 SF/marking = 112 SF @ $5/SF)
- Class III pavement marking (2 markings @ 14 SF/marking = 28 SF @ $5/SF)
- Lighting (10 street lights @ $3,000/EA)
- Bicycle Detector Loop (6 @ $1,000 EA)

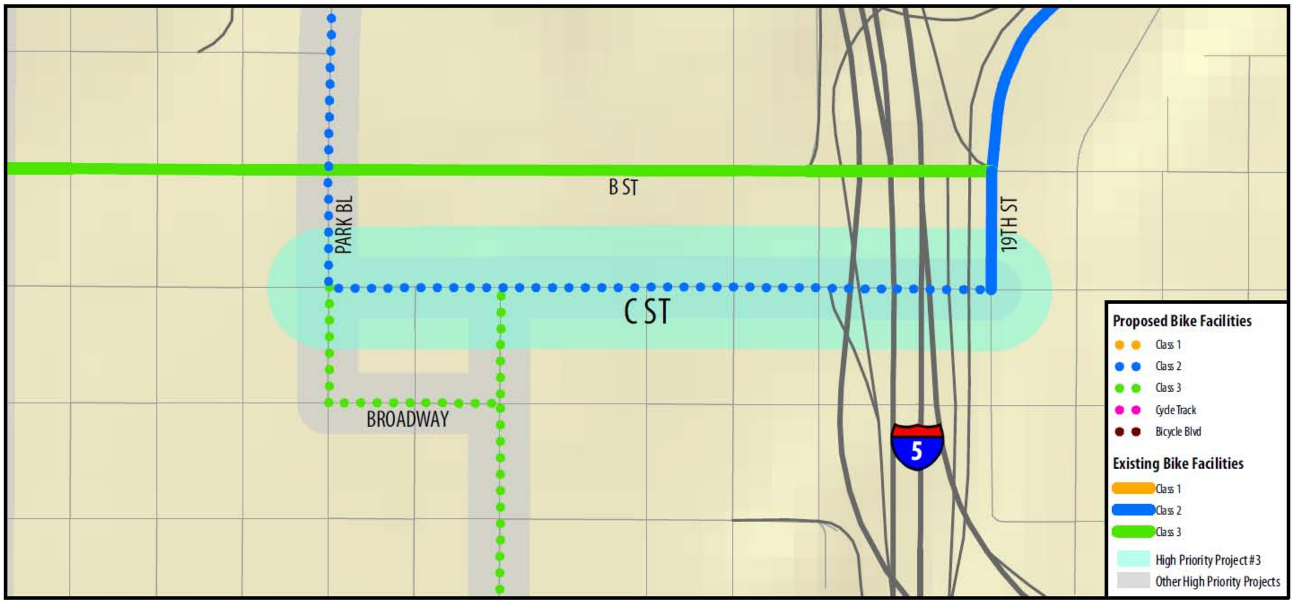
Cost

$622,059

Project 2 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$36,876
2	Remove Traffic Stripe (LF)	$9,999
3	Remove Asphalt Concrete (SF)	$38,178
4	Remove Concrete Curb (LF)	$92,718
5	Asphalt Pavement (Ton)	$40,560
6	Minor Concrete (Curb and Gutter) (LF)	$163,620
7	Roadside Sign - One Post (EA)	$4,800
8	Paint Traffic Stripe - Two Coat (LF)	$18,180
9	Paint Pavement Marking - Two Coat (SF)	$700
10	Lighting (City Street)	$30,000
11	Bicycle Detector Loop	$6,000
12	Mobilization (LS)	$36,876
	Subtotal	$478,507
	Contingency (30%)	$143,552
	Total Construction	**$622,059**

Project 3 – C Street: Park Boulevard to 19th Avenue



Project Description

This project serves bicycle demands between Centre City and Greater Golden Hill by providing Class II bicycle lanes along C Street from Park Boulevard in downtown to 19th Street in Golden Hill.

This high priority project is approximately a half mile long and connects the high density office uses of Centre City to the residential areas in East Village and Golden Hill. This bike facility provides connections to the Blue Line and Orange Line trolley, as well as express bus Routes 30, 50, and 150.

Bicycling issues along this project corridor include a difficult freeway crossing at I-5 and one reported bike crash from 2002-2007. Posted traffic speeds of 25 mph and volumes of 4,800 to 10,700 ADTs are generally amenable to bicycle travel.

This high priority project ranked 3rd of the top 40 with an average weighted prioritization score of 21.4 points.

Proposed Improvements

- Remove traffic striping (4,380 LF @ $1.65/LF)
- Roadside signage (6 signs @ $400/EA)
- Class II and traffic striping (10,950 LF @ $1/SF)
- Class II pavement markings (6 markings @ 14 SF/EA = 84 SF @ $5/SF)
- Bicycle Detector Loop (1 @ $1,000/EA)

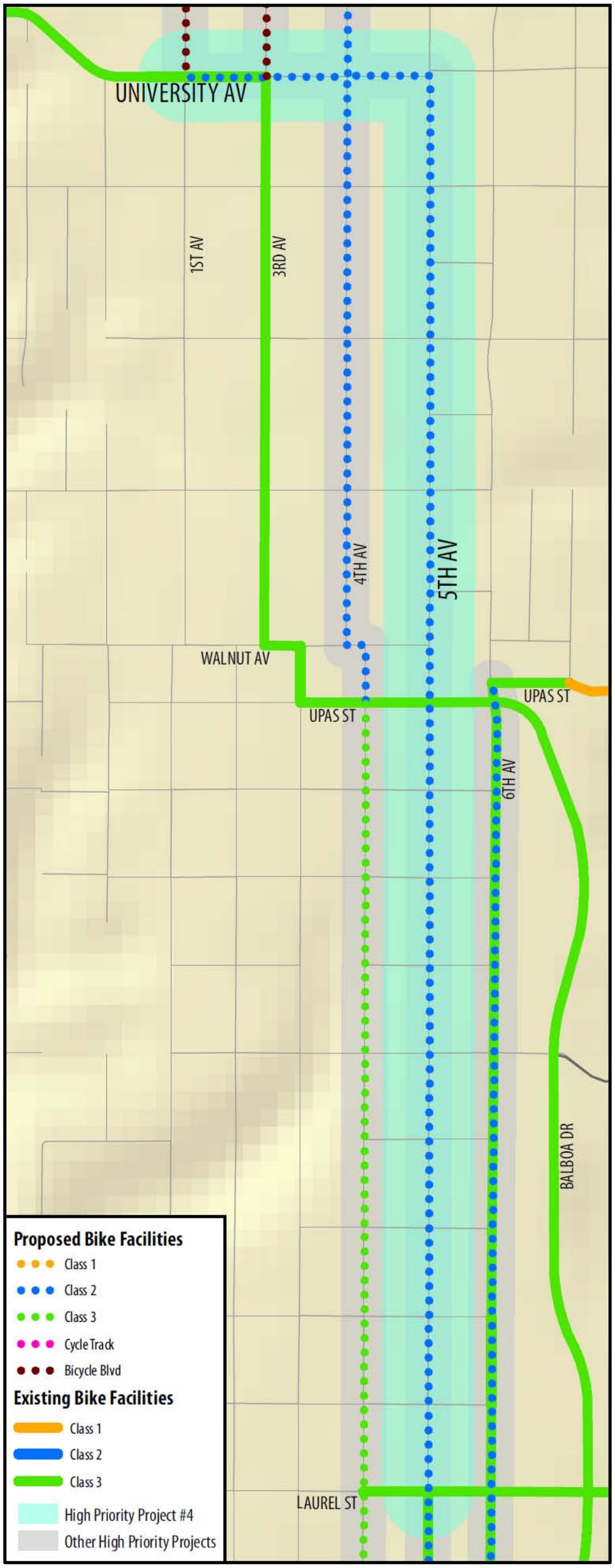
Cost

$34,056

Project 3 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$2,100
2	Remove Traffic Stripe (LF)	$7,227
3	Roadside Sign - One Post (EA)	$2,400
4	Paint Traffic Stripe - Two Coat (LF)	$10,950
5	Paint Pavement Marking - Two Coat (SF)	$420
6	Bicycle Detector Loop (EA)	$1,000
7	Mobilization (LS) 10%	$2,100
	Subtotal	$26,197
	Contingency (30%)	$7,859
	Total Construction	**$34,056**

Project 4 – University Avenue: 1st Avenue to 5th Avenue and 5th Avenue: University Avenue to Laurel Street



Project Description

This project serves bicycle demands through the Uptown communities of Hillcrest and Park West by upgrading the existing Class III bicycle lanes to Class II facilities along University Avenue from 1st Avenue to 5th Avenue, and by providing Class II bicycle lanes along 5th Avenue from University Avenue to Laurel Street.

This high priority project is over a mile long and connects dense residential neighborhoods in Hillcrest and Park West to key land uses such as Balboa Park. This bike facility follows portions of local bus Routes 1, 3, 10, 11, and express bus Route 120, and provides connections with local bus Route 83.

Bicycling issues along this project corridor include a high number of reported bike crashes from 2002-2007. Of the twenty total crashes, five were at the intersection of 5th Avenue and Laurel Street.

This high priority project ranked 4th of the top 40 with an average weighted prioritization score of 21.1 points.

Proposed Improvements

- Remove traffic stripe (14,240 LF @ $1.65/LF)
- Roadside signage (20 signs @ $400/EA)
- Class II and traffic striping (34,520 LF @ $1/LF)
- Class II pavement marking (20 markings @ 14 SF/marking = 280 SF @ $5/SF)
- Bicycle Detector Loop (14 @ $1,000/EA)

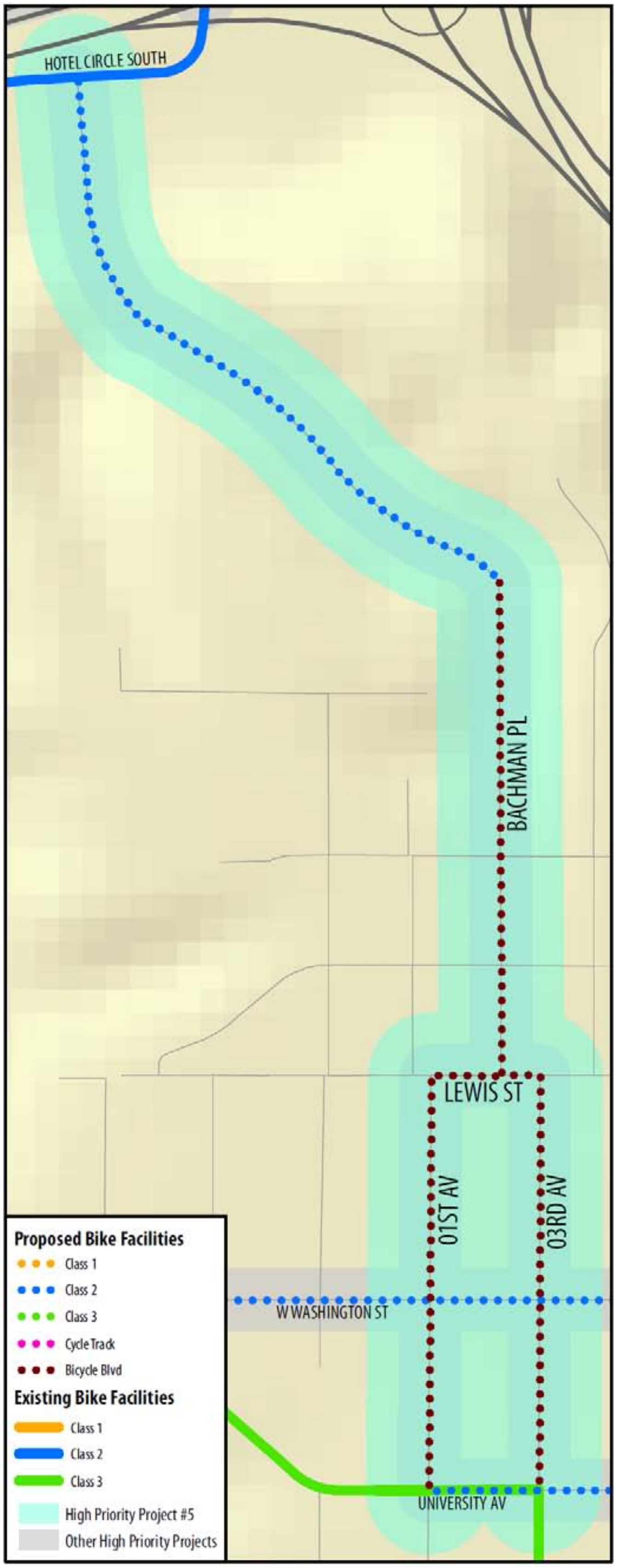
Cost

$129,818

Project 4 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$8,142
2	Remove Traffic Stripe (LF)	$23,496
8	Roadside Sign - One Post (EA)	$8,000
9	Paint Traffic Stripe - Two Coat (LF)	$34,520
10	Paint Pavement Marking - Two Coat (SF)	$1,400
11	Bicycle Detector Loop	$14,000
12	Mobilization (LS) 10%	$8,142
	Subtotal	$97,700
	Contingency (30%)	$29,310
	Total Construction	**$127,010**

Project 5 – Mission Valley to University Avenue Connection



Project Description

This project serves bicycle travel demand between Mission Valley and Uptown by providing 0.42 miles of Class II bicycle facilities along Bachman Place; 0.30 miles of Bicycle Boulevard facilities along Bachman Place; Bicycle Boulevard facilities along Lewis Street from 1st Avenue to 3rd Avenue, as well as along 1st Avenue and 3rd Avenue between Lewis Street and University Avenue.

This high priority project is over a mile long and provides a much needed bicycle connection between Mission Valley and the communities in the western Mid-City area. This bicycle facility follows a portion of local bus Route 3 and provides connections to local bus Routes 10, 11, and 83.

Bicycling issues along this project corridor include a high number of reported bike crashes from 2002-2007. Of the eleven total crashes, three were at the intersection of 3rd Avenue and Washington Street, and three were at the intersection of 1st Avenue and University Avenue.

This high priority project ranked 5th of the top 40 with an average weighted prioritization score of 21.0 points.

Proposed Improvements

- Roadside signage (26 signs @ $400 each)
- Class II traffic stripes (8,870 LF @ $1/LF)
- Class II pavement markings (6 markings @ 14 SF/marking = 84 SF @ $5/SF)
- Bicycle Boulevard pavement markings (20 markings @ 14 SF/marking = 280 SF @ $5/SF)

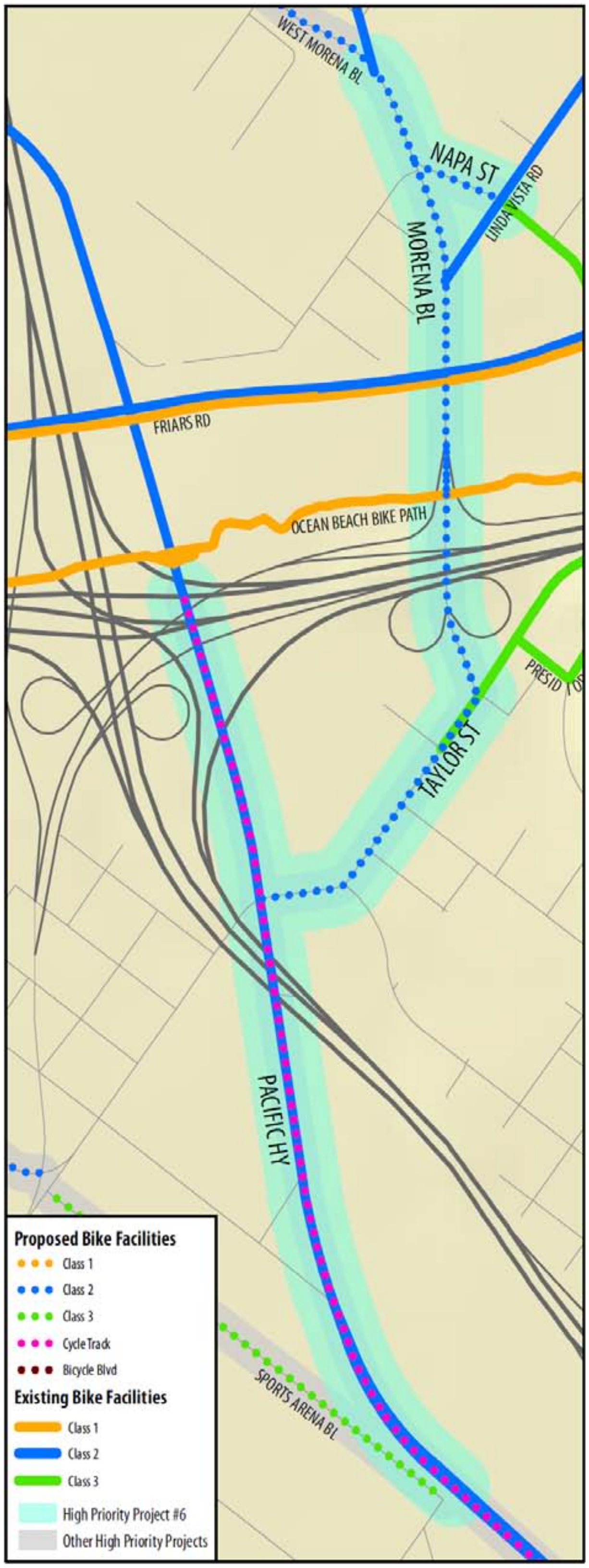
Cost

$32,901

Project 5 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$2,109
2	Roadside Sign (EA)	$10,400
3	Paint Traffic Stripe - Two Coat (LF)	$8,870
4	Paint Pavement Marking - Two Coat (SF)	$1,820
5	Mobilization (LS)	$2,109
	Subtotal	$25,308
	Contingency (30%)	$7,593
	Total Construction	**$32,901**

Project 6 – Linda Vista to Pacific Highway Connection



Project Description

This project serves bicycle demands between Linda Vista, Mission Valley, Old Town, and Midway by providing Class II bicycle facilities along Morena Boulevard from West Morena Boulevard to Taylor Street and along Napa Street from Morena Boulevard to Linda Vista Road. The project also includes upgrading the existing Class III bicycle facilities to Class II facilities along Taylor Street from Pacific Highway to Morena Boulevard, as well as upgrading the existing Class II bicycle facilities to Cycle Track facilities along Pacific Highway from the Ocean Beach Bike Path to Sports Arena Boulevard. This high priority project is over a mile long and connects important land uses, including the Old Town Transit Center and commercial districts west of I-5. This bike facility provides connections to local bus routes (Routes 8, 9, 10, 14, 28, 35, 44, and 105), express bus routes (Routes 30, 50 and 150), the Orange Line trolley, the Blue line trolley, and the Coaster Commuter Rail service. Bicycling issues along this project corridor include relatively high travel speeds of approximately 35 mph along Morena Boulevard and Taylor Street and 45 mph along Pacific Highway, and high volumes along Pacific Highway from 6,600 to 27,800 ADTs, along Morena Boulevard from 30,000 to 40,000 ADTs, and along Taylor Street from 15,000 to 25,000 ADTs. This segment has two difficult freeway crossings at I-5 and I-8, and has had twelve reported bike crashes from 2002-2007, including six crashes at the intersection of Taylor Street and Pacific Highway. This high priority project ranked 6th of the top 40 with an average weighted prioritization score of 20.3 points.

Proposed Improvements

- Remove traffic striping (31,122 LF @ $1.65/LF)
- Remove Asphalt Concrete (67,770 SF @ $7/SF)
- Remove Concrete Curb (4,080 LF @ $15/LF)
- Remove Concrete Sidewalk (10,400 SF @ $8/SF)
- Install Asphalt Pavement (2,954 tons @ $120/ton)
- Install Concrete Curb (11,610 LF @ $30/LF)
- Install Concrete Paving (129 CY @ $1,000/CY)
- Roadside Signage (50 signs @ $400/EA)
- Class II and traffic striping (17,170 LF @ $1/LF)
- Class II pavement markings (20 markings @ 14 SF/marking = 612 SF @ $5/SF)
- Modify Signals (4 signals @ $5,000/EA)
- Install Bicycle Detector Loops (20 detectors @ $1,000/EA)
- High Conflict Intersection Treatment (10 @ $2,500 /EA)

Cost

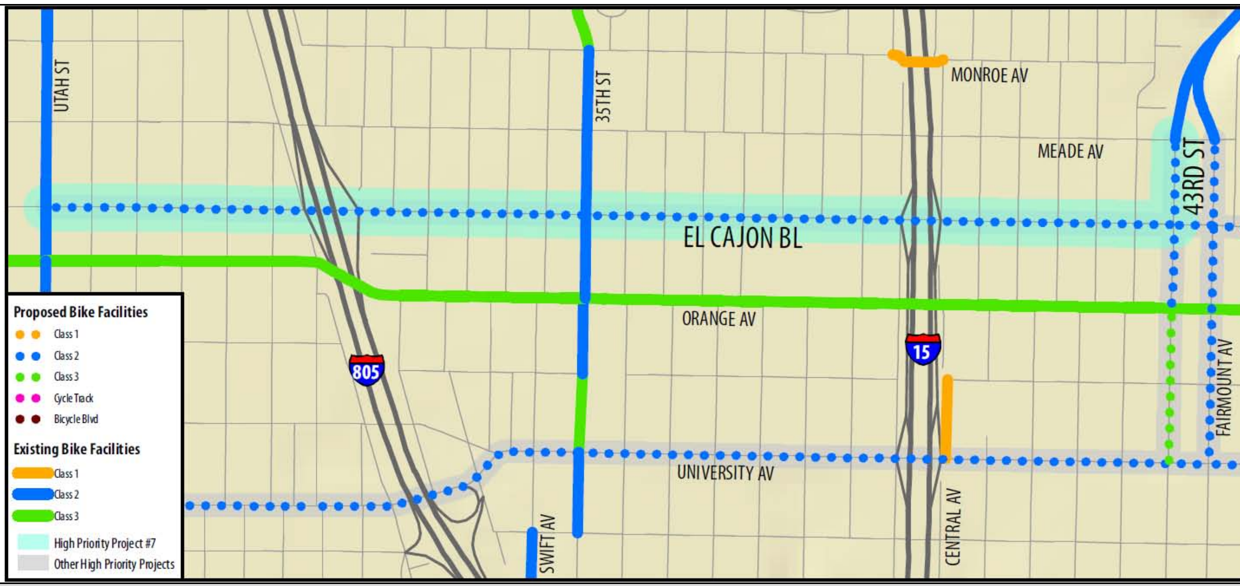
$2,519,885

Project 6 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$161,531
2	Remove Traffic Stripe (LF)	$51,351
3	Remove Asphalt Concrete (SF)	$474,390
4	Remove Concrete Curb (LF)	$69,360
5	Remove Concrete Sidewalk (SF)	$83,200
6	Asphalt Pavement (Ton)	$354,480
7	Roadside Sign - One Post (EA)	$20,000
8	Minor Concrete (Curb and Gutter) (LF)	$348,300
9	Minor Concrete Sidewalk 4" (CY)	$129,000
10	Paint Traffic Stripe - Two Coat (LF)	$17,170
11	Paint Pavement Marking - Two Coat (SF)	$3,060
12	Bicycle Detector Loop (EA)	$20,000
13	Modify Signal (EA)	$20,000
14	High Conflict Treatment	$25,000
15	Mobilization (LS) 10%	$161,531

Subtotal	$1,938,373
Contingency (30%)	$581,512
Total Construction	**$2,519,885**

Project 7 – El Cajon Boulevard: Utah Street to 43rd Street and 43rd Street: Meade Avenue to El Cajon Boulevard



Project Description

This project serves bicycle demands through North Park, City Heights, Normal Heights, and Kensington by providing a Class II bicycle facility on El Cajon Boulevard from Utah Street to 43rd Street and a Class III bicycle facility along 43rd Street from Meade Avenue to El Cajon Boulevard.

This high priority project is nearly two miles long and connects the residential and commercial districts of North Park to those in Kensington and to key land use destinations including San Diego State University. This bike facility follows portions of local bus Routes 1, 6, 13, 15, and 966, and provides connections to local bus Route 2 and express bus Routes 210 and 960.

Bicycling issues along the El Cajon Boulevard portion of this project corridor include high travel speeds of 30 to 40 mph and high traffic volumes from 23,000 to 36,000 ADTs. 43rd Street also has a high posted travel speed of 30 mph and traffic volumes of approximately 23,500 ADTs. This segment has had an extremely high number of reported bike crashes from 2002-2007. Of the thirty-eight total crashes, several intersections counted three crashes each, including the El Cajon Boulevard/35th Street intersection and the El Cajon Boulevard/I-805 Ramps intersection. There are also difficult freeway crossings at the I-15 and at the I-805.

This high priority project ranked 7th of the top 40 with an average weighted prioritization score of 20.3 points.

Proposed Improvements

- Remove traffic striping (37,340 LF @ $1.65/LF)
- Roadside signage (54 signs @ $400/EA)
- Class II and traffic striping (73,980 LF @ $1/LF)
- Class II pavement markings (52 markings @ 14 SF/EA = 728 SF @ $5/SF)
- Class III pavement markings (2 markings @ 14 SF/EA = 28 SF @ $5/SF)
- Bicycle detector loop (26 @ $1,000/EA)

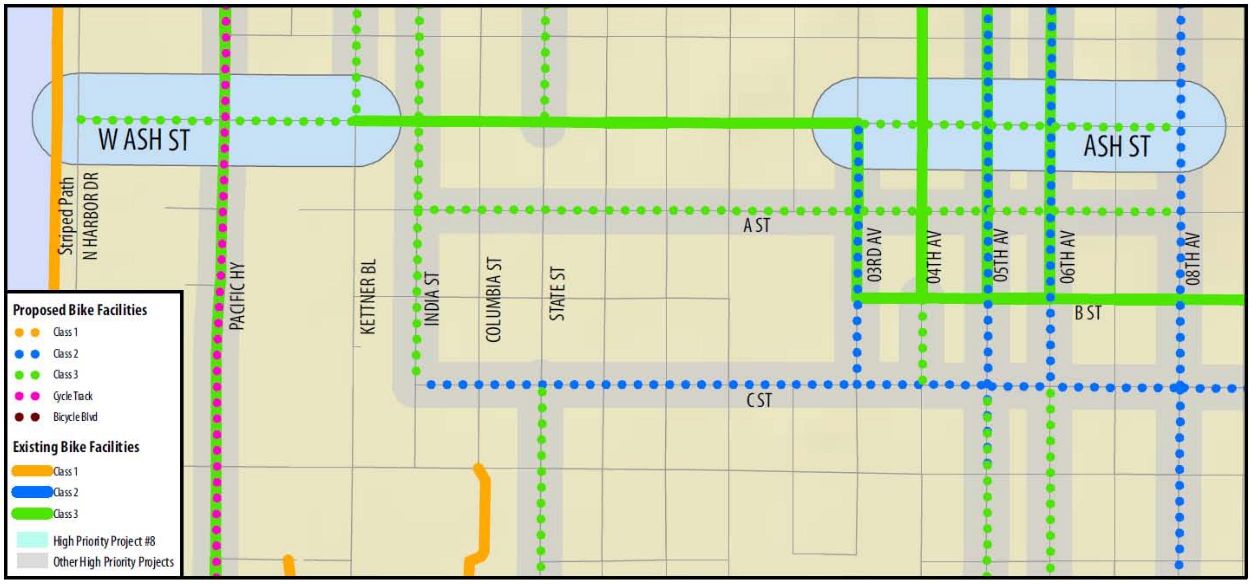
Cost

$291,675

Project 7 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$18,697
2	Remove Traffic Stripe (LF)	$61,611
3	Roadside Sign - One Post (EA)	$21,600
4	Paint Traffic Stripe - Two Coat (LF)	$73,980
5	Paint Pavement Marking - Two Coat (SF)	$3,780
6	Bicycle Detector Loop (EA)	$26,000
7	Mobilization (LS) 10%	$18,697
	Subtotal	$224,365
	Contingency (30%)	$67,310
	Total Construction	**$291,675**

Project 8 – West Ash Street: North Harbor Drive to Kettner Boulevard and Ash Street: 3rd Avenue to 8th Avenue



Project Description

This project serves bicycle demands between the Little Italy and Cortez Hill communities of Centre City by providing Class III bicycle facilities along West Ash Street from North Harbor Drive to Kettner Boulevard and along Ash Street from 3rd Avenue to 8th Avenue.

This high priority project is a half-mile long and connects Centre City residential neighborhoods to the existing Class I bicycle path along the harbor. It also provides connections between key downtown land uses including major employment, shopping, and tourist attractions. This project provides access to local bus routes (Routes 2, 3, 83, and 923), express bus routes (Routes 20, 120, and 210), premium express routes (Routes 810, 820, 850, and 860), the Blue Line trolley line and the Coaster commuter rail.

Bicycling issues along this project corridor include five reported bike crashes from 2002-2007. Posted traffic speeds of 25 mph and volumes of 6,600 to 17,300 ADTs are generally favorable for safe bicycle travel.

This high priority project ranked 8th of the top 40 with an average weighted prioritization score of 19.2 points.

Proposed Improvements

- Roadside signage (21 signs @ $400/EA)
- Class III pavement markings (9 markings @ 14 SF/marking = 126 SF @ $5/SF)

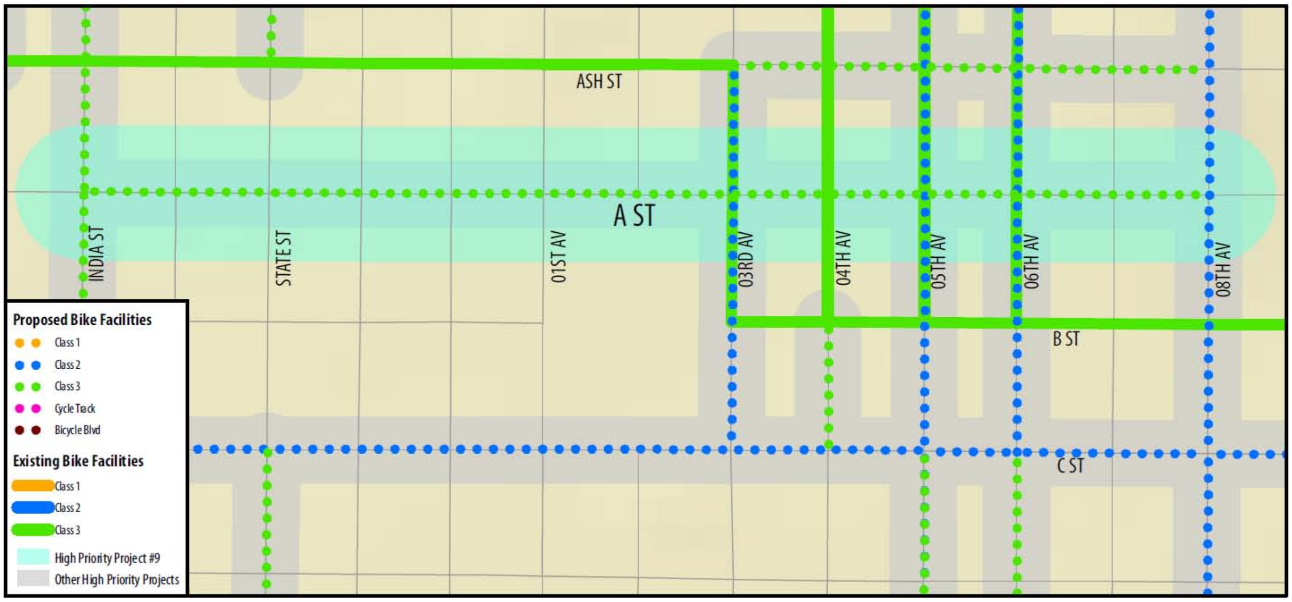
Cost

$14,087

Project 8 – West Ash Street: North Harbor Drive to Kettner Boulevard

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$903
2	Roadside Sign - One Post (EA)	$8,400
3	Paint Pavement Marking - Two Coat (SF)	$630
4	Mobilization (LS) 10%	$903
	Subtotal	$10,836
	Contingency (30%)	$3,251
	Total Construction	**$14,087**

Project 9 – A Street: India Street to 8th Avenue



Project Description

This project serves intra-community bicycle demands across the northern portion of Centre City by providing Class III bicycle facilities along A Street from India Street to 8th Avenue.

This high priority project is over half-mile long and connects key land uses within Centre City, including major employment centers, tourist destinations, Balboa Park, and San Diego City College. This project provides connections to local bus Routes 3, 83, and 11, and express bus Routes 20, 30, 50, 120, and 150.

Bicycling issues along this project corridor include four reported bike crashes from 2002-2007. Low posted traffic speeds of 25 mph and volumes of 7,900 to 16,100 ADTs help to create a generally safe bicycling environment.

This high priority project ranked 9th of the top 40 with an average weighted prioritization score of 19.0 points.

Proposed Improvements

- Roadside signage (13 signs @ $400/EA)
- Painted Class III pavement markings (13 markings @ 14 SF/marking = 182 SF @ $5/SF)

Cost

$9,532

Project 9 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$611
2	Roadside Sign (EA)	$5,200
3	Paint Traffic Stripe - Two Coat (LF)	$0
4	Paint Pavement Marking - Two Coat (SF)	$910
5	Mobilization (LS)	$611
	Subtotal	$7,332
	Contingency (30%)	$2,200
	Total Construction	**$9,532**

Project 10 – Washington Street: University Avenue to Normal Street; Normal Street: Washington Street to Park Boulevard; and Park Boulevard: El Cajon Boulevard to Madison Avenue

Project Description

This project serves bicycle demands between Midtown, Mission Hills, Hillcrest, University Heights, and North Park by providing Class II bicycle facilities along Washington Street from University Avenue to Normal Street, along Normal Street from Washington Street to Park Boulevard, and along Park Boulevard from El Cajon Boulevard to Madison Avenue.

This high priority project is over two miles long and connects the communities of Uptown and North Park to key land uses including employment centers, shopping centers, UCSD Medical Group, and Mercy Hospital. This project provides access to local bus routes (Routes 1, 3, 10, 15, 83, and 11), express bus routes (Routes 20 and 120), and premium express routes (Routes 810, 820, 850, and 860).

Bicycling issues along this project corridor include high travel speeds of 30 mph along Park Boulevard, and speeds of 35 to 55 mph along Washington Street. Washington Street also has high traffic volumes (23,100 to 43,200 ADTs). This segment has had twenty-one reported bike crashes from 2002-2007, including five crashes at the intersection of Washington Street and Lincoln Avenue.

This high priority project ranked 10th of the top 40 with an average weighted prioritization score of 19.0 points.

Proposed Improvements

- Remove traffic striping (25,520 LF @ $1.65/LF)
- Remove asphalt concrete (6,710 SF @ $5/SF)
- Remove concrete curb (1,810 LF @ $17/LF)
- Install asphalt pavement (449 tons @ $130/ton)
- Install retaining wall (5,400 SF @ $75/SF)
- Roadside signage (56 signs @ $400/EA)
- Class II and traffic striping (54,020 LF @ $1/SF)
- Class II pavement markings (56 markings @ 14 SF/EA = 784 SF @ $5/SF)
- Bicycle Detector Loop (24 @ $1,000/EA)
- High conflict area treatment (4 areas @ $2,500/EA)

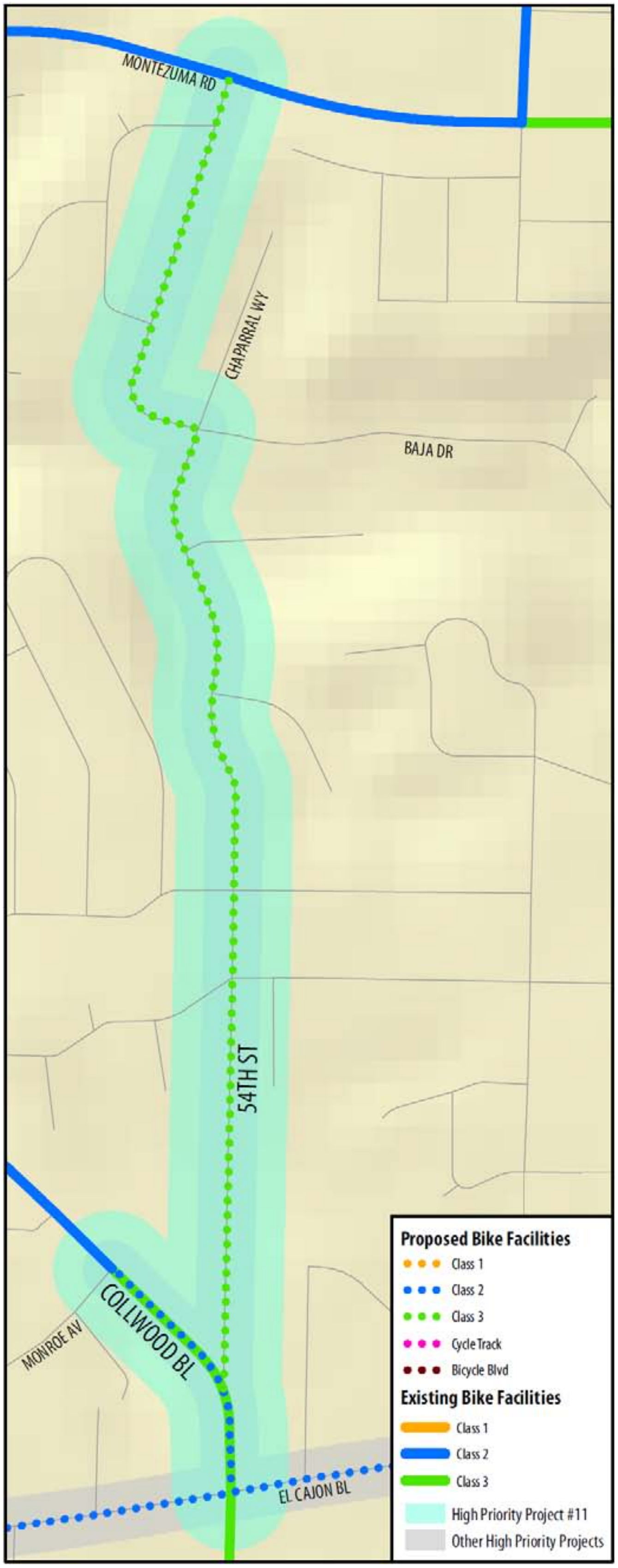
Cost

$1,060,251

Project 10 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$67,965
2	Remove Traffic Stripe (LF)	$42,108
3	Remove Asphalt Concrete (SF)	$33,550
4	Remove Concrete Curb (LF)	$30,770
5	Asphalt Pavement (Ton)	$53,880
6	Retaining Wall Area (SF)	$405,000
7	Roadside Sign - One Post (EA)	$22,400
8	Paint Traffic Stripe - Two Coat (LF)	$54,020
9	Paint Pavement Marking - Two Coat (SF)	$3,920
10	Bicycle Detector Loop (EA)	$24,000
11	High Conflict Treatment (EA)	$10,000
12	Mobilization (LS) 10%	$67,965
	Subtotal	$815,578
	Contingency (30%)	$244,673
	Total Construction	**$1,060,251**
	Remove Parking	308 spaces

Project 11 – 54th Street: Montezuma Road to El Cajon Boulevard and Collwood Boulevard: Monroe Avenue to 54th Street



Project Description

This project serves bicycle demands between the College Area, City Heights, and Talmadge by providing Class III bicycle facilities along 54th Street from Montezuma Road to Collwood Boulevard, by upgrading the existing Class III bicycle facilities to Class II facilities along 54th Street from Collwood Boulevard to El Cajon Boulevard, and upgrading the existing Class III bicycle facilities to Class II facilities along Collwood Boulevard from Monroe Avenue to 54th Street.

This high priority project is over a mile long and connects the College and Mid-City communities to key land uses including San Diego State University. This project provides connections to local bus Routes 1, 11, 15, and 955.

Bicycling issues along this project corridor include three reported bike crashes from 2002-2007. Posted traffic speeds of 25 mph and volumes of approximately 3,000 to 3,200 ADTs along 54th Street from Montezuma Road to Collwood Boulevard are generally amenable to bicycle travel. As 54th merges with Collwood Boulevard south to El Cajon Boulevard, however, posted traffic speeds increase to 35 mph and volumes increase to approximately 21,800 to 26,900 ADTs, creating difficult intersections at 54th Street and Collwood Boulevard and at 54th Street and El Cajon Boulevard. The slopes along portions of 54th Street are also quite extreme for bicycle travel.

This high priority project ranked 11th of the top 40 with an average weighted prioritization score of 18.6 points.

Proposed Improvements

- Remove traffic stripe (920 LF @ $1.65/LF)
- Roadside signage (15 signs @ $400/EA)
- Class II and traffic stripe (5,520 LF @ $1/LF)
- Class II pavement markings (4 markings @ 14 SF/marking = 56 SF @ $5/SF)
- Class III pavement markings (11 markings @ 14 SF/marking = 154 SF @ $5/SF)
- Bicycle Detector Loop (4 @ $1,000/EA)

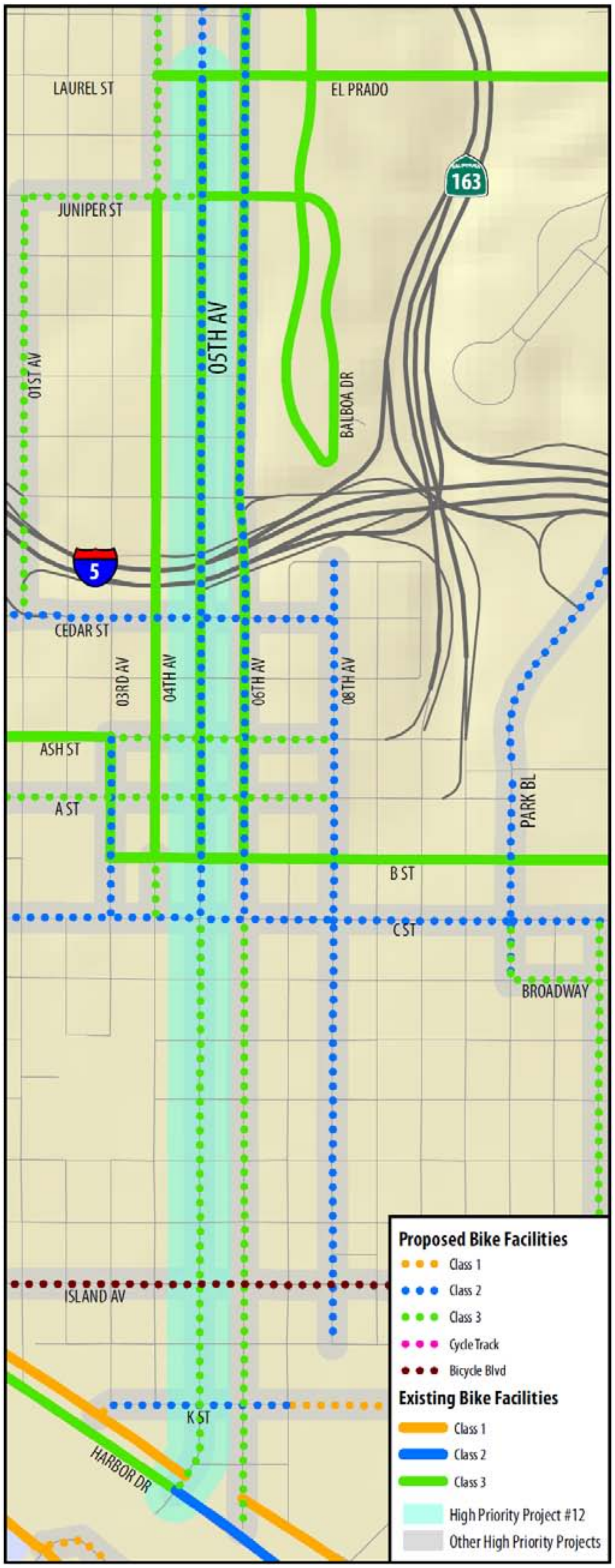
Cost

$28,218

Project 11 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$1,809
2	Remove Traffic Stripe (LF)	$1,518
3	Roadside Sign - One Post (EA)	$6,000
4	Paint Traffic Stripe - Two Coat (LF)	$5,520
5	Paint Pavement Marking - Two Coat (SF)	$1,050
6	Bicycle Detector Loop (EA)	$4,000
7	Mobilization (LS)	$1,809
	Subtotal	$21,706
	Contingency (30%)	$6,512
	Total Construction	**$28,218**

Project 12 – 5th Avenue: Laurel Street to Harbor Drive



Project Description

This project serves bicycle demands between Uptown and the Centre City districts of Cortez Hill and Gaslamp by upgrading the existing Class III bicycle facilities to Class II facilities along 5th Avenue from Laurel Street to Broadway, and by providing Class II bicycle facilities along 5th Avenue from Broadway to Harbor Drive.

This high priority project is over a mile and three-quarters long and connects the relatively dense residential and commercial neighborhoods of Uptown and Centre City to key downtown land uses including major employment and shopping centers, Balboa Park, and Petco Park. This project provides connections to local bus Routes 2, 3, 7, 11, 15, 901, 923, and 929; express bus Routes 20, 30, 50, 120, 150, and 210; premium express Bus Routes 810, 820, 850, and 860; and the Blue Line and Orange Line trolley.

Bicycling issues along this project corridor include a difficult freeway crossing at I-5 and fourteen reported bike crashes from 2002-2007, including five crashes at the intersection of 5th Avenue and Laurel Street (this intersection is also the southern terminus of Project 4). Posted traffic speeds between 25 and 35 mph and traffic volumes between 6,200 and 19,900 ADTs are generally amenable to bicycle travel.

This high priority project ranked 12th of the top 40 with an average weighted prioritization score of 18.3 points.

Proposed Improvements

- Roadside signage (30 signs @ $400/EA)
- Class II traffic striping (5,702 LF @ $1/SF)
- Class II pavement markings (16 markings @ 14 SF/marking = 224 SF @ $5/SF)
- Class III pavement markings (8 markings @ 14 SF/marking = 112 SF @ $5/SF)

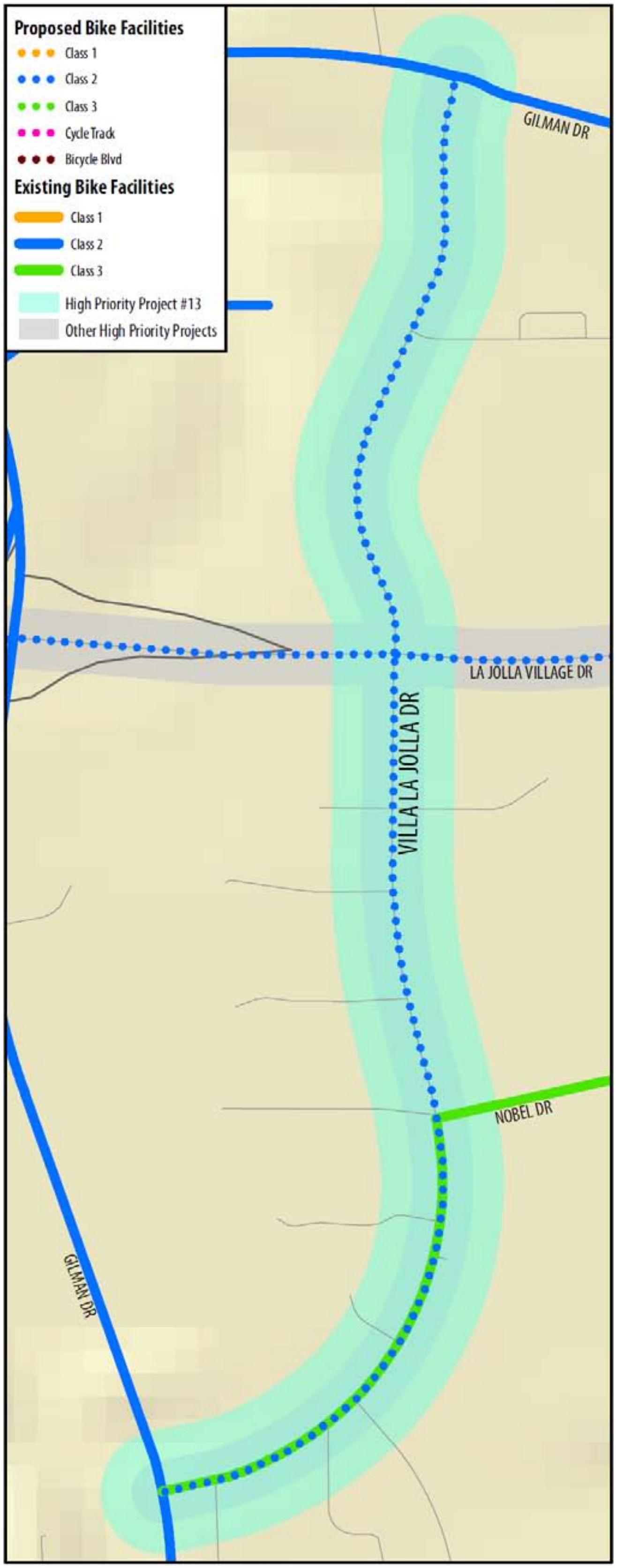
Cost

$30,235

Project 12 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$1,938
2	Roadside Sign - One Post (EA)	$12,000
3	Paint Traffic Stripe - Two Coat (LF)	$5,702
4	Paint Pavement Marking - Two Coat (SF)	$1,680
5	Mobilization (LS) 10%	$1,938
	Subtotal	$23,258
	Contingency (30%)	$6,977
	Total Construction	**$30,235**

Project 13 – Villa La Jolla Drive: Gilman Drive (N) to Gilman Drive (S)



Project Description

This project serves bicycle demands in the La Jolla and University communities by upgrading the existing Class III bicycle facilities to Class II facilities along Villa La Jolla Drive from Gilman Drive (N) to Gilman Drive (S).

This high priority project is nearly a mile long and connects the residential and commercial districts near La Jolla Village Square to key land uses including the VA Hospital and UCSD. This project provides connections to local bus Routes 41, 49, and 921; express bus Routes 30 and 150; and NCTD Breeze Route 301.

Bicycle issues along this project corridor include nine reported bicycle crashes from 2002-2007, with several intersections reporting two crashes each, including at the intersection of Villa La Jolla Drive and La Jolla Village Drive and at the intersection of Villa La Jolla Drive and Gilman Drive (S). Issues also include relatively high posted travel speeds of 35 to 50 mph, high traffic volumes between 10,000 and 50,100 ADTs, and difficult topography along Villa La Jolla Drive north of La Jolla Village Drive.

This high priority project ranked 13th of the top 40 with an average weighted prioritization score of 18.2 points.

Proposed Improvements

- Remove traffic stripe (8,220 LF @ $1.65/LF)
- Remove asphalt concrete (1,400 SF @ $7/SF)
- Remove concrete curb (1,400 LF @ $17/LF)
- Remove sidewalk (3,900 SF @ $8/SF)
- Install asphalt pavement (415 tons @ $120/ton)
- Roadside signage (46 signs @ $400/EA)
- Install concrete curb (1,400 LF @ $30/LF)
- Install sidewalk (76 CY @ $1,000/CY)
- Class II and traffic striping (17,780 LF @ $1/SF)
- Class II pavement marking (32 markings @ 14 SF/marking = 448 SF @ $5/SF)
- Bicycle Detector Loop (12 @ $1,000/EA)
- Lighting (10 street lights @ $3,000/EA)
- Fire Hydrant Assembly (2 @ $10,000/EA)

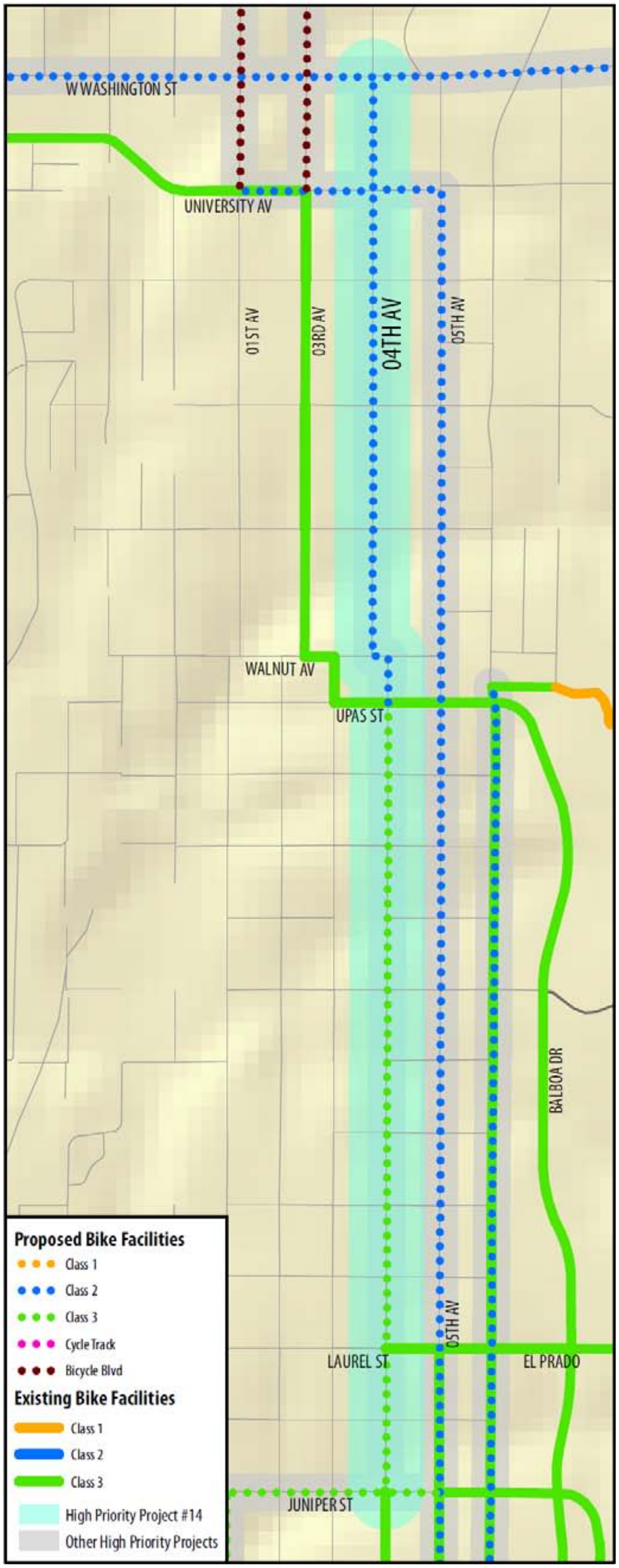
Cost

$540,669

Project 13 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$34,658
2	Remove Traffic Stripe (LF)	$13,563
3	Remove Asphalt Concrete (SF)	$9,800
4	Remove Concrete Curb (LF)	$23,800
5	Remove Concrete Sidewalk (SF)	$31,200
6	Asphalt Pavement (Ton)	$49,800
7	Roadside Sign - One Post (EA)	$18,400
8	Minor Concrete (Curb and Gutter) (LF)	$42,000
9	Minor Concrete Sidewalk 4" (CY)	$76,000
10	Paint Traffic Stripe - Two Coat (LF)	$17,780
11	Paint Pavement Marking - Two Coat (SF)	$2,240
12	Bicycle Detector Loop (EA)	$12,000
13	Lighting (City Street) LS	$30,000
14	Fire Hydrant Assembly (EA)	$20,000
15	Mobilization (LS)	$34,658
	Subtotal	$415,899
	Contingency (30%)	$124,770
	Total Construction	**$540,669**
	Remove Parking	89 spaces

Project 14 – 4th Avenue: Washington Street to Juniper Street



Project Description

This project serves intra-community bicycle demands in Uptown between the Hillcrest and Park West neighborhoods by providing Class II bicycle facilities on 4th Avenue from Washington Street to Upas Street and Class III bicycle facilities on 4th Avenue from Upas Street to Juniper Street.

This high priority project is nearly a mile and a half long and connects the residential and commercial neighborhoods of Uptown to many key land uses including Mercy Hospital, the UCSD Medical Center, Balboa Park, and Centre City. This project provides connections to local bus Routes 1, 3, 10, 11, and 8, and express bus Route 120.

Bicycling issues along this project corridor include eleven reported bike crashes from 2002-2007, with three crashes at the intersection of 4th Avenue and University Avenue. Posted traffic speeds of 25 to 30 mph and volumes of 8,400 to 13,700 ADTs are otherwise generally amenable to bicycle travel.

This high priority project ranked 14th of the top 40 with an average weighted prioritization score of 18.1 points.

Proposed Improvements

- Roadway Signage (18 signs @ $400/EA)
- Painted Class II traffic striping (6,758 LF @ $1/LF)
- Painted Class II pavement markings (7 markings @ 14 SF/marking = 98 SF @ $5/SF)
- Painted Class III pavement markings (11 markings @ 14 SF/marking = 154 SF @ $5/SF)

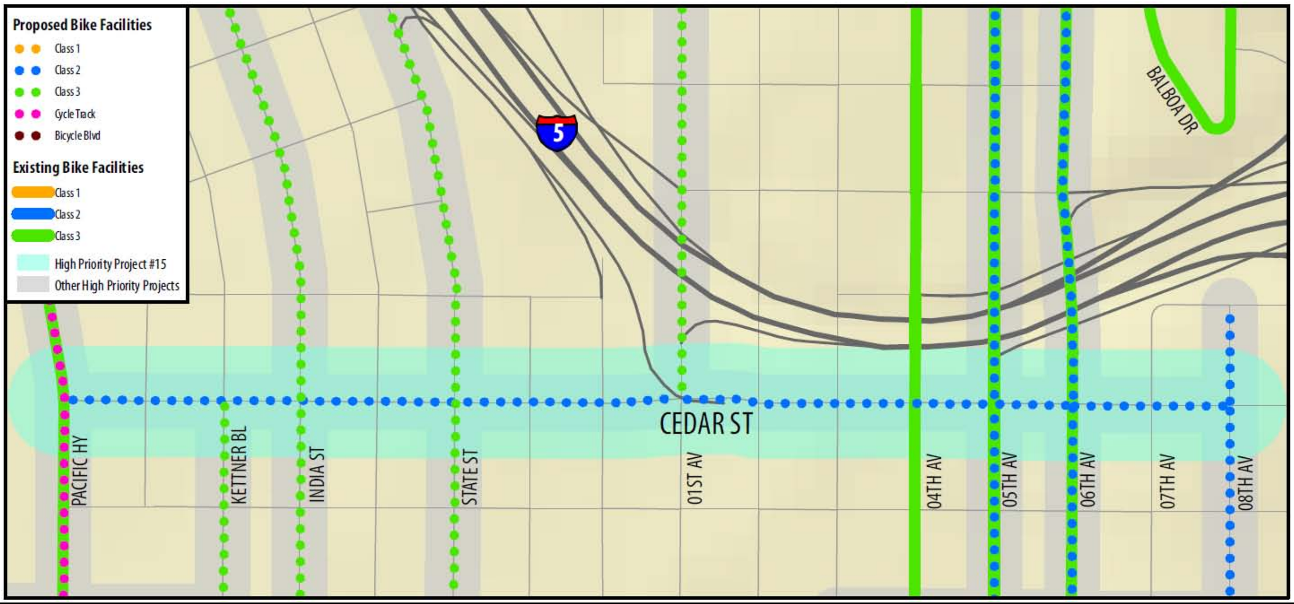
Cost

$23,741

Project 14 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$1,522
2	Roadside Sign (EA)	$7,200
3	Paint Traffic Stripe - Two Coat (LF)	$6,758
4	Paint Pavement Marking - Two Coat (SF)	$1,260
5	Mobilization (LS)	$1,522
	Subtotal	$18,262
	Contingency (30%)	$5,479
	Total Construction	**$23,741**

Project 15 – Cedar Street: Pacific Highway to 8th Avenue



Project Description

This project serves east-west bicycle demands through northern Centre City between the Harbor, Little Italy, and Cortez Hill neighborhoods by providing Class II bicycle facilities along Cedar Street from Pacific Highway to 8th Avenue.

This high priority project is nearly a mile long and connects residential neighborhoods to office buildings, shopping, tourist attractions, the harbor, and Balboa Park. This project also provides connections to local bus Routes 3, 11, and 83; express bus Routes 30, 50, 120, and 150; premium express Routes 810, 820, 850, and 860; the Blue Line trolley, and the Coaster Commuter Rail line.

Bicycling issues along this project corridor include five reported bike crashes from 2002-2007 and a difficult freeway ramp crossing at the I-5 SB Offramp. Posted traffic speeds of 25 mph and volumes of 3,000 to 8,400 ADTs are otherwise generally favorable for bicycle travel.

This high priority project ranked 15th of the top 40 with an average weighted prioritization score of 17.9 points.

Proposed Improvements

- Roadside Signage (32 signs @ $400/EA)
- Class II painted traffic stripes (16,896 LF @ $1/LF)
- Class II painted pavement markings (32 markings @142 SF/marking = 448 SF @ $5/SF)

Cost

$49,820

Project 15 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$3,194
2	Roadside Sign (EA)	$12,800
3	Paint Traffic Stripe - Two Coat (LF)	$16,896
4	Paint Pavement Marking - Two Coat (SF)	$2,240
5	Mobilization (LS)	$3,194
	Subtotal	$38,323
	Contingency (30%)	$11,497
	Total Construction	**$49,820**

Project 16 – University Avenue: Texas Street to Fairmont Avenue; 43rd Street: El Cajon Boulevard to University Avenue; and Fairmont Avenue: Meade Avenue to University Avenue

Project Description

This project serves bicycle demands between North Park, City Heights, Kensington, and Talmadge by providing Class II bicycle facilities along University Avenue from Texas Street to Fairmont Avenue, along 43rd Street from El Cajon Boulevard to University Avenue, and along Fairmont Avenue from Meade Avenue to University Avenue.

This high priority project is over three miles long and serves residential and commercial areas within North Park and Mid-City. This project also provides connections to local bus Routes 1, 2, 6, 7, 10, 13, 15, 965, and 966, and express bus Routes 210 and 960.

Bicycling issues along this project corridor include travel speeds of 25 to 35 mph and volumes from 4,700 to 7,000 ADTs along 43rd Street, from 16,200 to 32,400 ADTs along University Avenue, and from 39,200 to 39,500 ADTs along Fairmont Avenue. There is a difficult intersection at University Avenue and Fairmont Avenue, and two difficult freeway crossings at the I-805 NB Ramps and at the I-15 Ramps. This segment has also had a staggering fifty-eight reported bike crashes from 2002-2007, including several intersections reporting three crashes, such as at the intersections of University Avenue and Utah Street, University Avenue and the I-805 northbound ramps, and University Avenue and the I-15 southbound ramps.

This high priority project ranked 16th of the top 40 with an average weighted prioritization score of 17.4 points.

Proposed Improvements

- Remove traffic stripe (40,380 LF @ $1.65/LF)
- Roadside signage (165 signs @ $400/EA)
- Class II and traffic striping (74,660 LF @ $1/LF)
- Class II pavement markings (89 markings @ 14 SF/marking = 1,246 SF @ $5/SF)
- Bicycle Detector Loop (48 @ $1,000/EA)

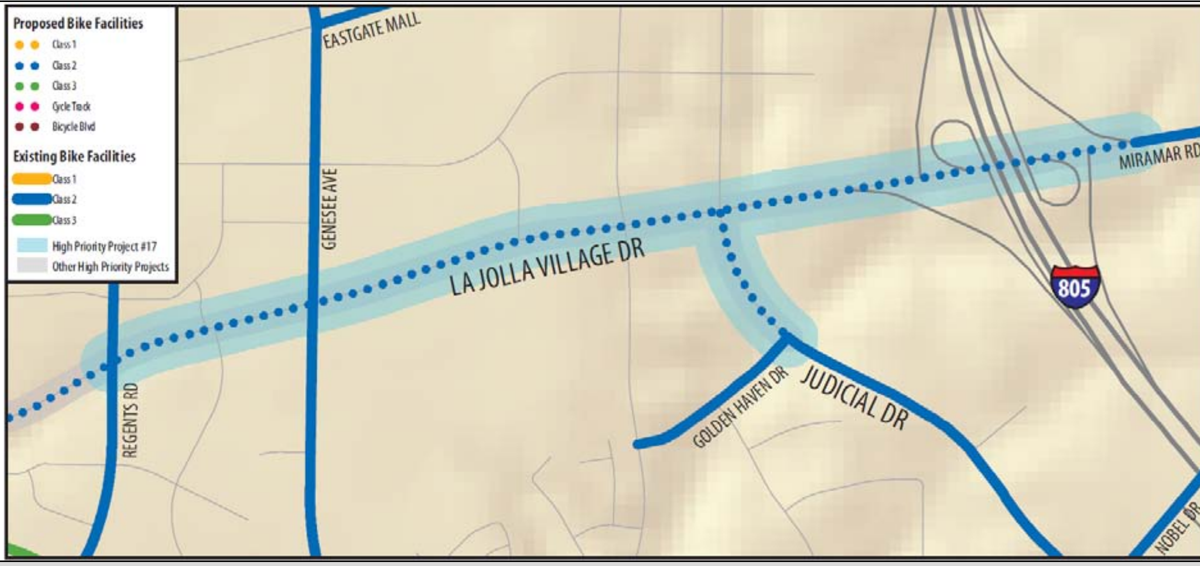
Cost

$395,487

Project 16 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$21,352
2	Remove Traffic Stripe (LF)	$66,627
3	Roadside Sign - One Post (EA)	$66,000
4	Paint Traffic Stripe - Two Coat (LF)	$74,660
5	Paint Pavement Marking - Two Coat (SF)	$6,230
6	Bicycle Detector Loop	$48,000
7	Mobilization (LS) 10%	$21,352
	Subtotal	$304,221
	Contingency (30%)	$91,266
	Total Construction	**$395,487**
	Remove Parking	263 spaces

Project 17 – La Jolla Village Drive: Regents Road to I-805 NB On-ramp; Judicial Drive: La Jolla Village Drive to Golden Haven Drive



Project Description
This project serves east-west bicycle demands between University City and Mira Mesa by providing Class II bicycle facilities along La Jolla Village Drive from Regents Road to Miramar Road at Interstate 805, and along Judicial Drive from La Jolla Village Drive to Golden Haven Drive. The project area serves key land uses including Westfield University Towne Centre, the future Mid-Coast San Diego Trolley station, and the University City business district. By providing connections to existing bike lanes, this project also enhances access to other key activity centers including large industrial employment sites in Mira Mesa, MCAS Miramar, the UCSD campus, and the La Jolla and Clairemont Mesa communities. This project connects to local bus Routes 31, 41, 49, 86, 89, and 921; express bus Routes 30, 50, 150, and 960; and the NCTD Breeze Route 301. Bicycling issues include high traffic speeds of 40 to 50 mph and high volumes of 36,100 to 63,600 ADTs along La Jolla Village Drive, a difficult freeway crossing at I-805, and five reported bicycle crashes from 2002 – 2007, four of which were located at the intersection of La Jolla Village Drive and Regents Road. This project ranked 17th out of the top 40, with an average weighted prioritization score of 18.5 points.

Proposed Improvements	
▪ Remove traffic stripe (7,240 LF @ $1.65/SF) ▪ Remove asphalt concrete (1,450 SF @ $7/SF) ▪ Remove concrete curb (1,450 LF @ $17/LF) ▪ Remove concrete sidewalk (7,250 SF @ $8/SF) ▪ Install asphalt pavement (483 tons @ $120/ton) ▪ Install 4' high retaining wall (5,800 SF @ $75/SF) ▪ Roadside signage (20 signs @ $400/EA)	▪ Install concrete curb and gutter (1,500 LF @ $30/LF) ▪ Install concrete sidewalk (89 CY @ $1,000/CY) ▪ Class II and traffic striping (22,920 LF @ $1/LF) ▪ Class II pavement markings (10 markings @ 14 SF/marking = 140 SF @ $5/SF) ▪ Bicycle Detector Loops (10 @ $1,000/EA) ▪ Fire Hydrant Assembly (1 @ $10,000/EA)

Cost
$1,221,990

Project 17 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$78,333
2	Remove Traffic Stripe (LF)	$11,946
3	Remove Asphalt Concrete (SF)	$10,150
4	Remove Concrete Curb (LF)	$24,650
5	Remove Concrete Sidewalk (SF)	$58,000
6	Asphalt Pavement (Ton)	$57,960
7	Retaining Wall Area (SF)	$435,000
8	Roadside Sign - One Post (EA)	$8,000
9	Minor Concrete (Curb and Gutter) (LF)	$45,000
10	Minor Concrete Sidewalk 4" (CY)	$89,000
11	Paint Traffic Stripe - Two Coat (LF)	$22,920
12	Paint Pavement Marking - Two Coat (SF)	$700
13	Bicycle Detector Loop (EA)	$10,000
14	Fire Hydrant Assembly (EA)	$10,000
15	Mobilization (LS) 10%	$78,333
	Subtotal	$939,992
	Contingency (30%)	$281,998
	Total Construction	**$1,221,990**

Project 18 – Texas Street: Madison Avenue to University Avenue; University Avenue: Florida Street to Texas Street; and Florida Street: University Avenue to Upas Street

Project Description

This project serves bicycle demands between North Park, University Heights, and Balboa Park by providing Class II bicycle facilities along Texas Street from Madison Avenue to University Avenue, along University Avenue from Florida Street to Texas Street, and along Florida Street from University Avenue to Upas Street.

This high priority project is two miles long and connects the communities of Uptown and North Park to key land uses including shopping and employment centers and tourist attractions, such as Balboa Park. This project provides connections to local bus Routes 1, 6, 7, 10, 15, and 966.

Bicycling issues include relatively high travel speeds of 30 to 40 mph and traffic volumes of 8,900 to 28,000 ADTs along Texas Street. University Avenue and Florida Street both have posted traffic speeds of 25 mph and volumes between 3,700 and 19,800 ADTs, which can be generally amenable to bicycle travel. This project segment has a high number of bicycle crashes reported from 2002-2007. Of the twenty-five crashes reported, nine occurred at the intersection of University Avenue and Alabama Street.

This high priority project ranked 18th of the top 40 with an average weighted prioritization score of 17.0 points.

Proposed Improvements

- Remove traffic stripe (21,520 LF @ $1.65/LF)
- Remove asphalt concrete (650 SF @ $7/SF)
- Remove concrete curb (650 LF @ $17/LF)
- Install asphalt pavement (44 tons @ $120/ton)
- Install concrete curb (650 LF @ $30/LF)
- Install concrete paving (25 CY @ $1,000/CY)
- Roadside signage (56 signs @ $400/EA)
- Class II and traffic striping (40,780 LF @ $1/LF)
- Class II pavement markings (34 markings @ 14 SF/marking = 476 SF @ $5/SF)
- Bicycle Detector Loop (18 @ $1,000/EA)

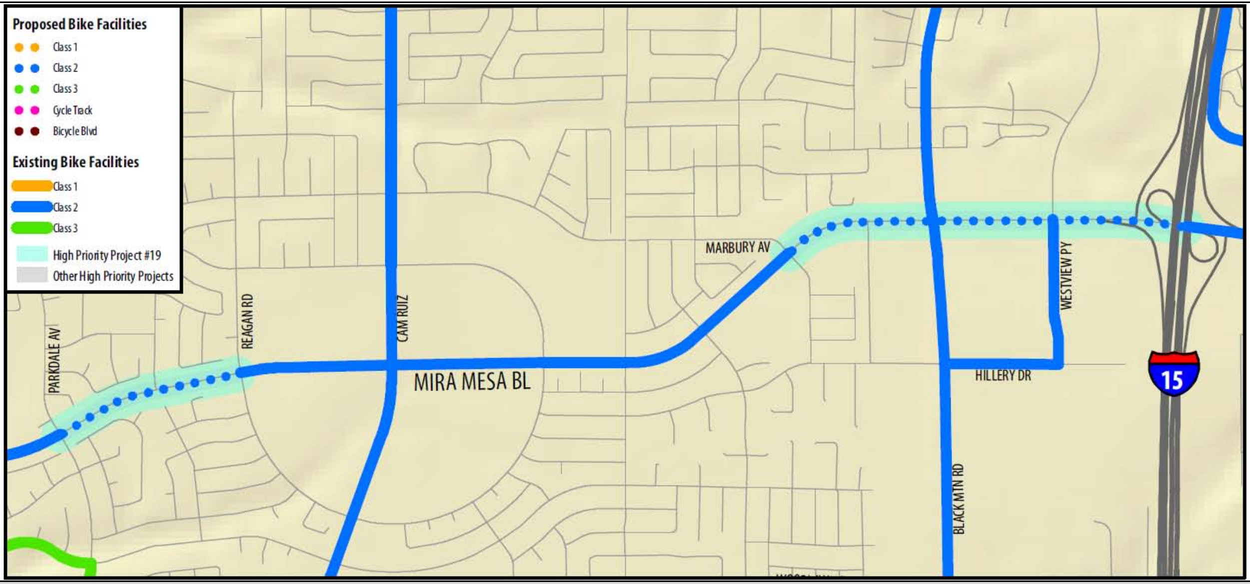
Cost

$287,739

Project 18 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$18,445
2	Remove Traffic Stripe (LF)	$35,508
3	Remove Asphalt Concrete (SF)	$4,550
4	Remove Concrete Curb (LF)	$11,050
5	Asphalt Pavement (Ton)	$5,280
6	Minor Concrete (Curb and Gutter) (LF)	$19,500
7	Minor Concrete (Island Paving) (LF)	$25,000
8	Roadside Sign - One Post (EA)	$22,400
9	Paint Traffic Stripe - Two Coat (LF)	$40,780
10	Paint Pavement Marking - Two Coat (SF)	$2,380
11	Bicycle Detector Loop	$18,000
12	Mobilization (LS) 10%	$18,445
	Subtotal	$221,338
	Contingency (30%)	$66,401
	Total Construction	**$287,739**
	Remove Parking	219 spaces

Project 19 – Mira Mesa Boulevard: Parkdale Avenue to Reagan Road; and Mira Mesa Boulevard: Marbury Avenue to I-15



Project Description

This project serves bicycle demands between Mira Mesa and Scripps Miramar Ranch by providing Class II bicycle facilities along Mira Mesa Boulevard from Parkdale Avenue to Reagan Road and from Marbury Avenue to I-15.

This high priority project is over a mile long and connects the residential and commercial communities of Mira Mesa and Scripps Ranch to major employment and shopping centers and to Mira Mesa High School. This project provides connections to local bus Routes 31, 921, and 964; express bus Routes 20 and 210; and premium express Routes 810, 820, 850, and 860.

Bicycling issues along this project corridor include high traffic speeds of 45 mph, extremely high traffic volumes between 44,300 and 58,400 ADTs, a difficult freeway crossing at the I-15 southbound ramps, and fifteen reported bicycle crashes from 2002-2007, including four crashes at the intersection of Mira Mesa Boulevard and Black Mountain Road.

This high priority project ranked 19th of the top 40 with an average weighted prioritization score of 17.0 points.

Proposed Improvements

- Remove traffic striping (20,200 LF @ $1.65/LF)
- Remove asphalt concrete (3,690 SF @ $7/SF)
- Remove concrete pavement (3,690 SF @ $9/SF)
- Remove concrete curb (3,690 LF @ $17/LF)
- Highway planting ($200,000 LS)
- Install asphalt pavement (274 tons @ $120/ton)
- Roadside signage (8 signs @ $400/EA)
- Install concrete curb and gutter (3,690 LF @ $30/LF)
- Class II and traffic striping (30,300 LF @ $1/LF)
- Class II pavement markings (8 markings @ 14 SF/EA = 112 SF @ $5/SF)
- Bicycle Detector Loop (8 @ $1,000/EA)

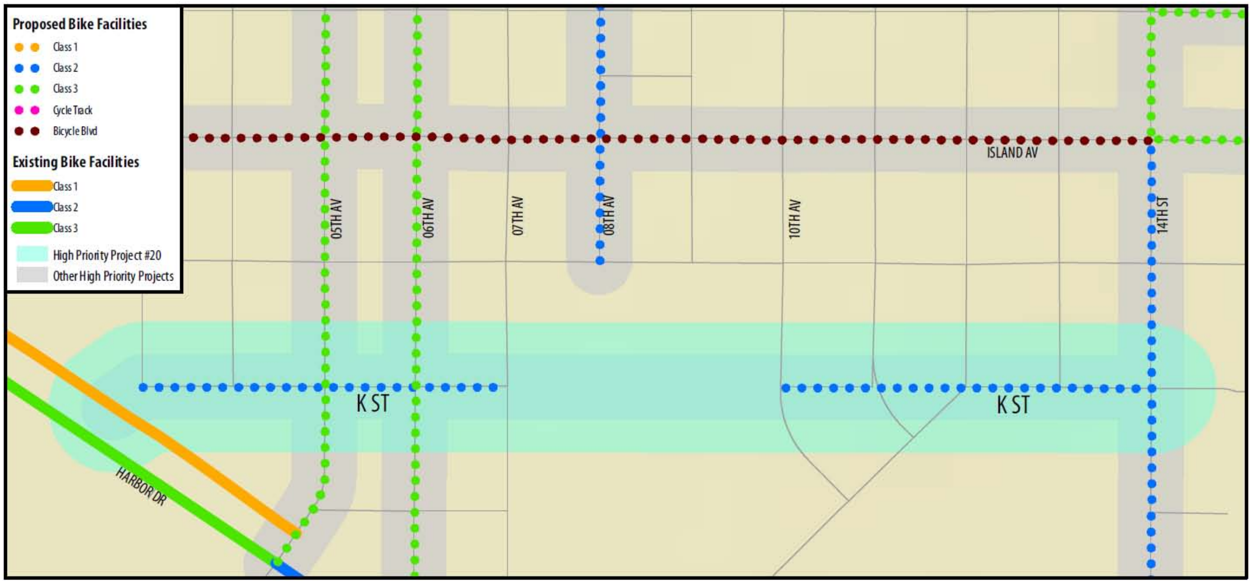
Cost

$843,554

Project 19 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$54,074
2	Remove Traffic Stripe (LF)	$33,330
3	Remove Asphalt Concrete (SF)	$25,830
4	Remove Concrete Pavement (SF)	$33,210
5	Remove Concrete Curb (LF)	$62,730
6	Highway Planting (LS)	$200,000
7	Asphalt Pavement (Ton)	$32,880
8	Roadside Sign - One Post (EA)	$3,200
9	Minor Concrete (Curb and Gutter) (LF)	$110,700
10	Paint Traffic Stripe - Two Coat (LF)	$30,300
11	Paint Pavement Marking - Two Coat (SF)	$560
12	Bicycle Detector Loop (EA)	$8,000
13	Mobilization (LS) 10%	$54,074
	Subtotal	$648,888
	Contingency (30%)	$194,666
	Total Construction	**$843,554**

Project 20 – K Street: 3rd Avenue to 7th Avenue; and K Street: 10th Avenue to 14th Street



Project Description

This project serves intra-community bicycle demands through the Centre City neighborhoods of East Village, Gaslamp, and the Marina District by providing Class II bicycle facilities along K Street from 3rd Avenue to 7th Avenue and from 10th Avenue to 14th Street.

This high priority project is nearly half a mile long and connects the residential and commercial neighborhoods near Petco Park to key downtown land uses including the harbor, the Martin Luther King Jr. Promenade, and the Bayshore Bikeway. This project provides connections to local bus Routes 11, 901, and 929, the Blue Line trolley, and the Orange Line trolley.

Bicycling issues along this project corridor include two reported bike crashes from 2002-2007. Posted traffic speeds of 25 mph and volumes of 1,800 ADT to 7,800 ADT are generally favorable for bicycle travel.

This high priority project ranked 20th of the top 40 with an average weighted prioritization score of 16.8 points.

Proposed Improvements

- Roadside Signage (20 signs @ $400/EA)
- Painted Class II traffic striping (9,082 LF @ $1/LF)
- Painted Class II pavement markings (20 markings @ 14 SF/marking = 280 SF @ $5/SF)

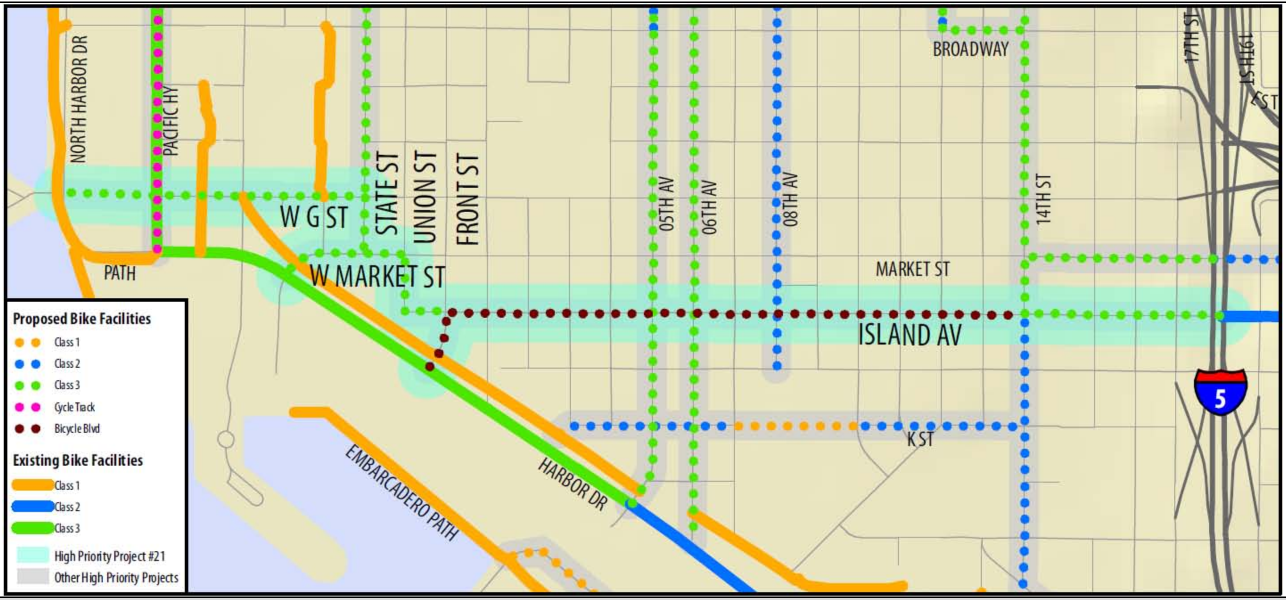
Cost

$28,831

Project 20 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$1,848
2	Roadside Sign (EA)	$8,000
3	Paint Traffic Stripe - Two Coat (LF)	$9,082
4	Paint Pavement Marking - Two Coat (SF)	$1,400
5	Mobilization (LS)	$1,848
	Subtotal	$22,178
	Contingency (30%)	$6,653
	Total Construction	**$28,831**

Project 21 – Marina District to East Village along G Street, Market Street, and Island Avenue

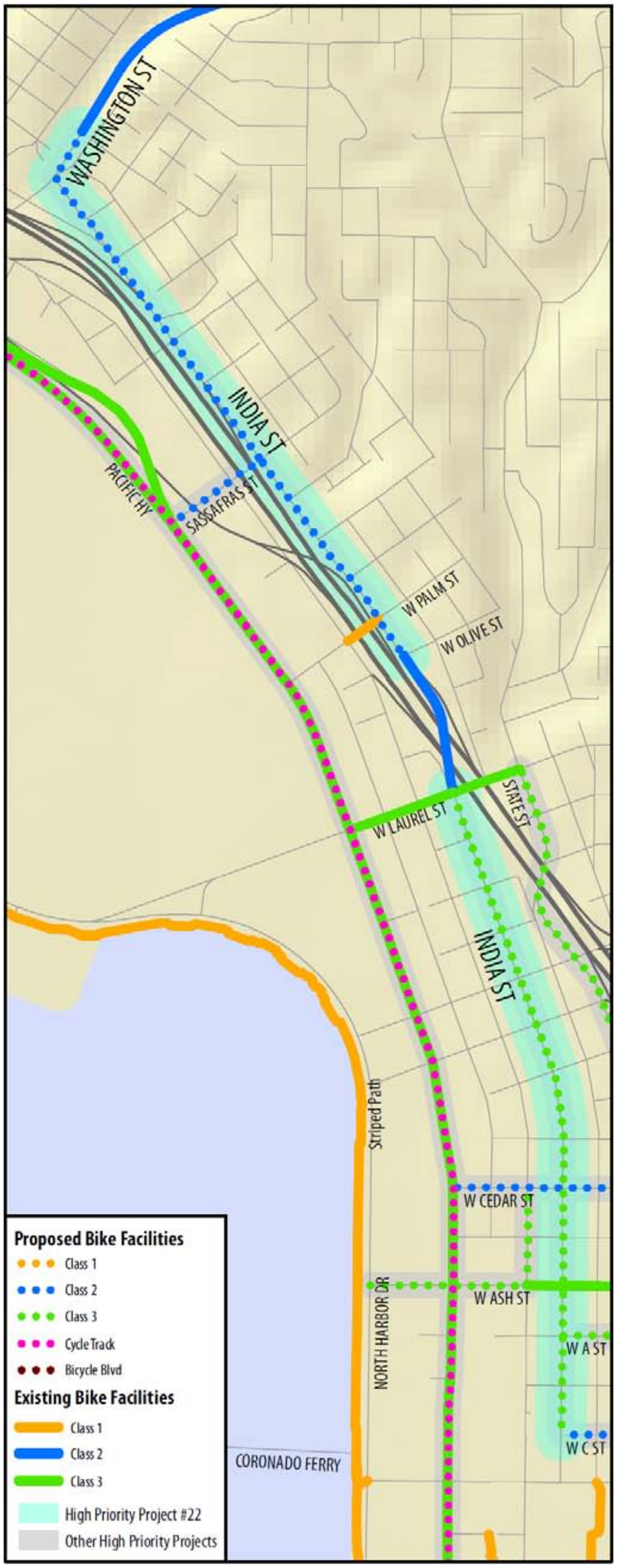


Project Description
This project serves bicycle demands through the Centre City neighborhoods of Harbor, Gaslamp, and East Village by providing Class III bicycle facilities along West G Street from North Harbor Drive to State Street, along State Street from West G Street to West Market Street, along West Market Street from Harbor Drive to Union Street, along Union Street from West Market Drive to Island Avenue, and along Island Avenue from Union Street to I-5. This high priority project is nearly two miles long and connects the dense residential and commercial neighborhoods near Petco Park and City College in the east to key land uses and transit opportunities in the west, including Seaport Village, the Orange Line, San Diego Harbor, and the Bayshore Bikeway. In conjunction with multiple other high priority projects, this project will greatly enhance the connectivity of the Center City bicycle network. Traffic speeds (25 mph) are generally amenable to bicycle travel and topography is not a significant issue. This segment had nine reported bike crashes from 2002-2007, however, including two crashes at the intersection of Harbor Drive and Market Street and two crashes at the intersection of 5th Street and Island Street. This high priority project ranked 21st of the top 40 with an average weighted prioritization score of 16.6 points.
Proposed Improvements
▪ Roadside signage (67 signs @ $400/EA) ▪ Class III pavement markings (24 markings @ 14 SF/marking = 336 SF @ $5/SF) ▪ Bicycle Boulevard pavement markings (37 markings @ 14 SF/marking = 518 SF @ $5/SF)
Cost
$50,158

Project 21 – Cost Estimate

1	Item	Preliminary Cost Estimate
2	Traffic Control System (LS) 10%	$3,215
3	Roadside Sign - One Post (EA)	$26,800
4	Paint Pavement Marking - Two Coat (SF)	$4,270
5	Mobilization (LS) 10%	$3,215
	Subtotal	$38,583
	Contingency (30%)	$11,575
	Total Construction	**$50,158**

Project 22 – India Street from Washington Street to West C Street



Project Description

This project serves travel demands between Uptown and Center City through the neighborhoods of Midtown, Little Italy, and Columbia by providing Class II bicycle facilities along Washington Street near India Street and along India Street from Washington Street to Olive Street. This project also includes Class III bicycle facilities along India Street from Laurel Street to West C Street.

This project is nearly two miles long and connects the residential neighborhood of Midtown in the north to key entertainment and downtown land uses, as well as to local bus Routes (11, 30, 50, 83), and the Blue Line and Orange Line trolley.

Bicycling issues along the proposed project include relatively high travel speeds (35-40 mph) along India Street. There have also been ten bicycle crashes from 2002-2007, including two at the intersection of India Street and B Street. Traffic volumes along the proposed project is low (less than 6,000 ADT) and generally amenable to bicycling.

This high priority project ranked 22nd out of the top 40 with an average weighted prioritization score of 16.6 points.

Proposed Improvements

- Remove traffic striping (19,610 LF @ $1.65/SF)
- Remove concrete curb (1,200 LF @ $17/LF)
- Install concrete pavement (179 CY @ $350/CY)
- Roadside signage (52 signs @ $400/EA)
- Class II and traffic striping (15,250 LF @ $1/LF)
- Class II pavement markings (24 markings @ 14 SF/marking = 336 SF @ $5/SF)
- Class III pavement markings (13 markings @ 14 SF/marking = 182 SF @ $5/SF)
- Bicycle Detector Loop (6 @ $1,000/EA)

Cost

$250,124

Project 22 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$16,034
2	Remove Traffic Stripe (LF)	$32,357
3	Remove Concrete Curb (LF)	$20,400
4	Concrete Pavement (8") (CY)	$62,650
5	Roadside Sign - One Post (EA)	$20,800
6	Paint Traffic Stripe - Two Coat (LF)	$15,250
7	Paint Pavement Marking - Two Coat (SF)	$2,830
8	Bicycle Detector Loop (EA)	$6,000
9	Mobilization (LS) 10%	$16,034
	Subtotal	$192,403
	Contingency (30%)	$57,721
	Total Construction	**$250,124**
	Remove Parking	48 spaces

Project 23 – State Street: Laurel Street to West G Street

Project Description

This project serves bicycling demands through the neighborhoods of Park West, Little Italy, Columbia, Marina, and Horton Plaza by providing Class III bicycle facilities along State Street from Laurel Street to West G Street.

This high priority project is over a mile long and runs along the borders of the residential neighborhoods of Park West and Little Italy in the north connecting them to downtown San Diego and key land uses in the south including shopping, dining, and employment opportunities. This project provides connections to local bus Routes 2, 901, 923, and 992; express bus Routes 30, 150, and 210; premium express Routes 810, 820, 850, and 860; and the Blue Line and the Orange Line trolley.

Current traffic volumes and speeds of 25-30 mph are conducive to the bicycling environment and there were no bicycle related crashes during the period between 2002 and 2007.

This high priority project ranked 23rd of the top 40 with an average weighted prioritization score of 16.6 points.

Proposed Improvements

- Roadside signage (36 signs @ $400/EA)
- Class III pavement markings (18 markings @ 14 SF/marking = 252 SF @ $5/SF)

Cost

$24,430

Project 23 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$1,566
2	Roadside Sign - One Post (EA)	$14,400
3	Paint Pavement Marking - Two Coat (SF)	$1,260
4	Mobilization (LS) 10%	$1,566
	Subtotal	$18,792
	Contingency (30%)	$5,638
	Total Construction	**$24,430**

Project 24 – Bayshore Bikeway: Embarcadero Path to National City city limit

Project Description

This project serves travel demands between the neighborhoods of Marina, Barrio Logan and the 32nd Street Naval Station by providing Class I bicycle facilities along the Bayshore Bikeway from the Embarcadero Path to the city limit of National City, running directly adjacent and parallel to the Class II facility on Harbor Drive.

This high priority project is over three miles long and connects the southern 5th Street terminus, Petco Park, and San Diego Convention Center in the north to key land uses in the south including manufacturing and naval employment centers, as well as the residential neighborhoods of Barrio Logan. It also serves as the sole north-south bikeway in the west between San Diego and National City. This project provides connections to local bus Routes 901 and 929, and runs parallel half a block away from the Blue Line trolley. The level topography of the Bayshore Bikeway is amenable to bicycle facilities.

This high priority project ranked 24th of the top 40 with an average weighted prioritization score of 16.5 points.

Proposed Improvements

- Install Class I asphalt pavement (5,069 tons @ $120/ton)
- Roadside Signage (30 signs @ $400/EA)
- Class I centerline striping (17,107 LF @ $1/LF)

Cost

$836,140

Project 24 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$2,911
2	Asphalt Pavement (Ton)	$608,256
3	Roadside Sign (EA)	$12,000
4	Paint Traffic Stripe - Two Coat (LF)	$17,107
5	Mobilization (LS)	$2,911
	Subtotal	$643,185
	Contingency (30%)	$192,955
	Total Construction	**$836,140**

Project 25 – Ruffin Road: Kearny Villa Road to Aero Drive

Project Description

This project serves intra-community bicycle demands through Kearny Mesa by providing Class II bicycle facilities along Ruffin Road from Kearny Villa Road to Aero Drive.

This high priority project is over two miles long and connects the Miramar Air Station and industrial park areas in the north to many key land uses including recreational trails through San Diego National Wildlife Refuge in the east, multiple transit stops, Miramar College, and Miramar Naval Air Station in the south. This project provides connections to local bus Routes 25 and 928, express bus Routes 20 and 960, and premium express Route 870.

Issues along this project corridor include high travel speeds of 45 to 55 mph. There have also been five bicycle crashes between 2002 and 2007, including two at the intersection of Ruffin Road and Claremont Mesa Boulevard. The topography of the project area is generally amenable to bicycling and traffic volumes are moderate.

This high priority project ranked 25th of the top 40 with an average weighted prioritization score of 15.9 points.

Proposed Improvements

- Remove traffic stripe (49,320 LF @ $1.65/LF)
- Remove asphalt concrete (700 SF @ $7/SF)
- Remove concrete curb (700 LF @ $17/LF)
- Remove concrete sidewalk (2,250 SF @ $8/SF)
- Install asphalt pavement (156 tons @ $120/ton)
- Roadside signage (46 signs @ $400/EA)
- Install concrete curb (700 LF @ $30/LF)
- Install concrete sidewalk (28 CY @ $1,000/CY)
- Class II and traffic striping (96,640 SF @ $1/SF)
- Class II pavement markings (46 markings @ 14 SF/EA = 644 SF @ $5/SF)
- Bicycle Detector Loop (24 @ $1,000/EA)

Cost

$508,807

Project 25 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$32,616
2	Remove Traffic Stripe (LF)	$81,378
3	Remove Asphalt Concrete (SF)	$4,900
4	Remove Concrete Curb (LF)	$11,900
5	Remove Concrete Sidewalk (SF)	$18,000
7	Asphalt Pavement (Ton)	$18,720
8	Roadside Sign - One Post (EA)	$18,400
9	Minor Concrete (Curb and Gutter) (LF)	$21,000
10	Minor Concrete Sidewalk 4" (CY)	$28,000
11	Paint Traffic Stripe - Two Coat (LF)	$96,640
12	Paint Pavement Marking - Two Coat (SF)	$3,220
13	Bicycle Detector Loop (EA)	$24,000
14	Mobilization (LS) 10%	$32,616
	Subtotal	$391,390
	Contingency (30%)	$117,417
	Total Construction	**$508,807**
	Remove Parking	17 spaces

Project 26 – El Cajon Boulevard: 43rd Street to Montezuma Road

Project Description

This project serves travel demands through the Mid-City neighborhoods of Kensington, Talmadge, Teralta East, Colina Del Sol, El Cerrito, and Rolando by providing Class II bicycle facilities along El Cajon Boulevard from 43rd Street to Montezuma Road.

This high priority project is nearly three miles long and connects the residential neighborhoods of Mid-City and College Area with existing and proposed bicycle lanes west to North Park and Uptown, local bus routes (1, 13, 15, 856, 936, 955), and north to San Diego State University. In conjunction with multiple other high priority projects, this project will greatly enhance the connectivity of the City's downtown bicycle network between the Mid-City and College area communities.

Issues along this project area include high traffic speeds (45-55 mph), high traffic volumes along the western leg near Fairmont Avenue, and thirty-eight bicycle crashes from 2002-2007, including four at the intersection of Euclid Avenue and El Cajon Boulevard.

This high priority project ranked 26th of the top 40 with an average weighted prioritization score of 15.8 points.

Proposed Improvements

- Remove traffic stripe (30,366 LF @ $1.65/LF)
- Roadside signage (68 signs @ $400/EA)
- Class II and traffic striping (91,098 LF @ $1/LF)
- Class II pavement markings (54 markings @ 14 SF/marking = 756 SF @ $5/SF)
- Bicycle Detector Loop (32 @ $1,000 EA)

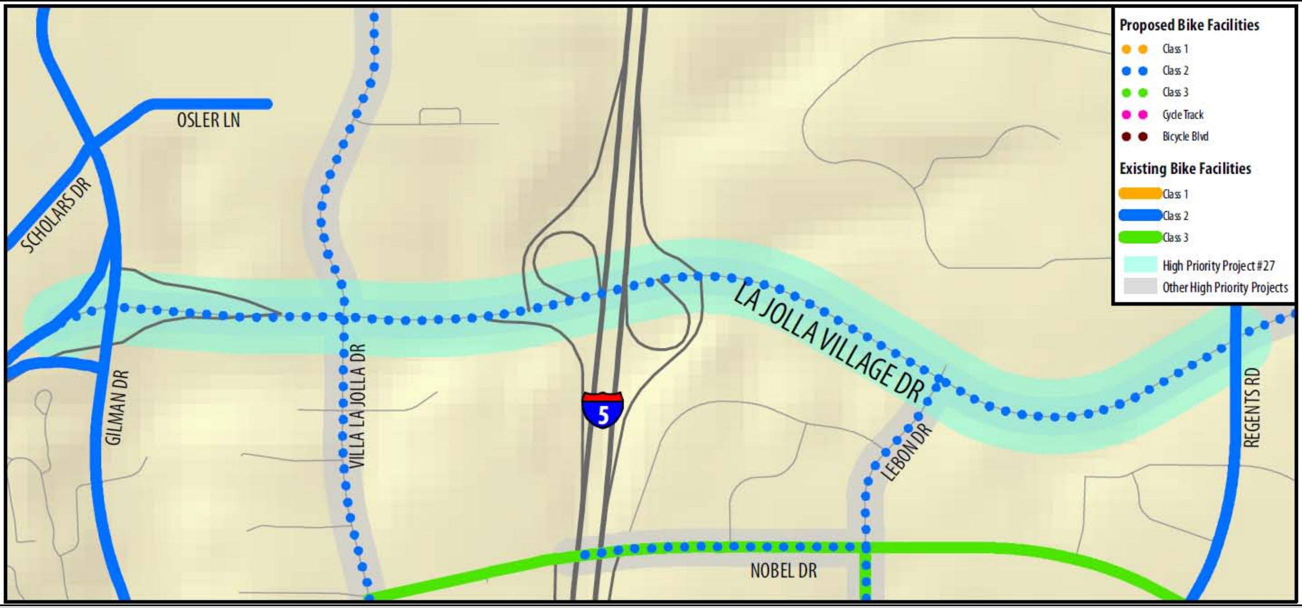
Cost

$318,551

Project 26 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$20,420
2	Remove Traffic Stripe (LF)	$50,104
3	Roadside Sign - One Post (EA)	$27,200
4	Paint Traffic Stripe - Two Coat (LF)	$91,098
5	Paint Pavement Marking - Two Coat (SF)	$3,780
6	Bicycle Detector Loop	$32,000
7	Mobilization (LS) 10%	$20,420
	Subtotal	$245,039
	Contingency (30%)	$73,512
	Total Construction	**$318,551**
	Remove Parking	17 spaces

Project 27 – La Jolla Village Drive: Gilman Drive to Regents Road



Project Description

This project serves travel demands within the University and La Jolla communities near the University of California at San Diego by providing Class II bicycle facilities along La Jolla Village Drive from Gilman Drive to Regents Road.

This high priority project is over a mile long and connects the residential neighborhoods near La Jolla Village and UCSD in the west with UTC shopping center and University City residential areas in the east. This project provides connections to local bus Routes 41, 49, and 921; express bus Routes 30 and 150; and NCTD Breeze Route 301.

Issues along the project corridor include a difficult freeway crossing at I-5 and nine bicycle crashes between 2002 and 2007, including four at the intersection of Regents Road and La Jolla Village Drive (this intersection is also the western terminus of Project 17). High traffic speeds of 40 to 45 mph and very high traffic volumes (43,200 to 62,700 ADT) are also issues for bicyclists using this roadway.

This high priority project ranked 27th of the top 40 with an average weighted prioritization score of 15.7 points.

Proposed Improvements

- Remove traffic striping (8,550 LF @ $1.65/LF)
- Remove asphalt concrete (1,010 SF @ $7/SF)
- Remove concrete pavement (1,840 SF @ $9/SF)
- Remove concrete curb (1,930 LF @ $17/LF)
- Install asphalt pavement (113 tons @ $120/ton)
- Roadside signage (24 signs @ $400/EA)
- Class II and traffic striping (21,600 LF @ $1/LF)
- Class II pavement markings (12 markings @ 14 SF/EA = 168 SF @ $5/SF)
- Bicycle Detector Loop (10 @ $1,000/EA)
- High Conflict Area Treatment (4 areas @ $2,500/EA)

Cost

$212,391

Project 27 – La Jolla Village Drive: Gilman Drive to Regents Road

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$13,615
2	Remove Traffic Stripe (LF)	$14,108
4	Remove Asphalt Concrete (SF)	$7,070
5	Remove Concrete Pavement (SF)	$16,560
6	Remove Concrete Curb (LF)	$32,810
7	Asphalt Pavement (Ton)	$13,560
8	Roadside Sign - One Post (EA)	$9,600
9	Paint Traffic Stripe - Two Coat (LF)	$21,600
10	Paint Pavement Marking - Two Coat (SF)	$840
11	Bicycle Detector Loop (EA)	$10,000
12	High Conflict Treatment (LS)	$10,000
13	Mobilization (LS) 10%	$13,615
	Subtotal	$163,378
	Contingency (30%)	$49,013
	Total Construction	**$212,391**
	Remove Parking	124 spaces

Project 28 – Sassafras Street: Pacific Highway to India Street; Pacific Highway: Sassafras Street to Harbor Drive

Project Description

This project serves bicycle demands between western Midtown and the Centre City neighborhoods of Harbor View, Columbia, and Marina by providing Class II bicycle facilities along Sassafras Street from Pacific Highway to India Street and upgrading existing Class III bicycle facilities to Cycle Track facilities along Pacific Highway from Sassafras Street to Harbor Drive.

This high priority project is nearly two miles long and connects the industrial areas west of Pacific Highway with key residential and commercial land uses in Center City. This project provides connections to local bus Routes 2, 923, and 992; express bus Routes 30, 50, 150, and 210; premium express Routes 810, 820, 850, and 860; the Blue Line trolley; and the Coaster Commuter Rail.

Bicycling issues along this project corridor include four bicycle crashes from 2002 to 2007, including two at the intersection of Pacific Highway and Sassafras Street. Traffic speeds along Pacific Highway are between 35 and 45 mph and volumes are from 8,000 to 27,300 ADTs.

This high priority project ranked 28th of the top 40 with an average weighted prioritization score of 15.6 points.

Proposed Improvements

- Remove traffic striping (7,660 LF @ $1.65/LF)
- Remove Asphalt Concrete (119,000 SF @ $7/SF)
- Remove Concrete Pavement (480 LF @ $15/LF)
- Remove Concrete Curb (480 LF @ $17/LF)
- Remove Concrete Sidewalk (480 SF @ $8/SF)
- Install Asphalt Pavement (4,407 tons @ $120/ton)
- Install Concrete Sidewalk (30 CY @ $1,000/CY)
- Install Concrete Curb (17,480 LF @ $30/LF)
- Install Concrete Paving (149 CY @ $1,000/CY)
- Roadside Signage (44 signs @ $400/EA)
- Class II and traffic striping (11,320 LF @ $1/LF)
- Class II pavement markings (92 markings @ 14 SF/marking = 1,608 SF @ $5/SF)
- Install Bicycle Detector Loops (26 detectors @ $1,000/EA)
- Relocate RR Active Warning System (2@ $75,000/EA)

Cost

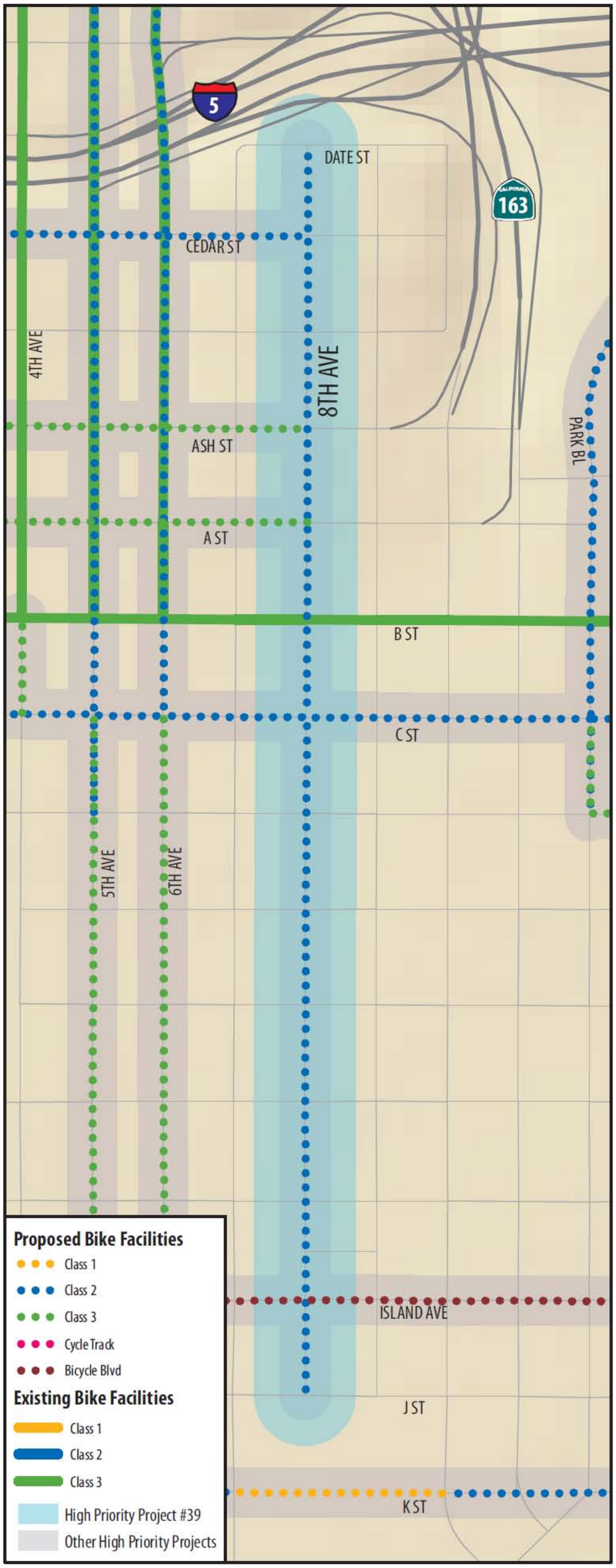
$3,487,441

Project 28 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$223,554
2	Remove Traffic Stripe (LF)	$12,639
3	Remove Concrete Pavement (SF)	$7,200
4	Remove Concrete Curb (LF)	$8,160
5	Remove Concrete Sidewalk (SF)	$3,840
6	Concrete Pavement (8") (CY)	$74,500
7	Roadside Sign - One Post (EA)	$17,600
8	Minor Concrete (Curb and Gutter) (LF)	$524,400
9	Minor Concrete Sidewalk 4" (CY)	$30,000
10	Paint Traffic Stripe - Two Coat (LF)	$11,320
11	Paint Pavement Marking - Two Coat (SF)	$8,040
12	Bicycle Detector Loop (EA)	$26,000
13	Relocate RR Active Warning System (EA)	$150,000
14	Mobilization (LS) 10%	$223,554

Subtotal	$2,682,647
Contingency (30%)	$804,794
Total Construction	**$3,487,441**

Project 29 – 8th Avenue: Date Street to J Street



Project Description

This project serves bicycle travel demand between the Center City neighborhoods of Cortez, Columbia, and East Village by providing Class II bicycle facilities along 8th Avenue from Date Street to J Street.

This high priority project is approximately one mile long and connects relatively dense residential neighborhoods and Balboa Park in the north with many downtown key land uses including major bus and trolley transit stations, employment centers, and PETCO Park in the south. This project provides connections to local bus Routes 2, 3, 7, 11, 15, 901, 923, and 929; express bus Routes 20, 30, 50, 150, and 210; premium express Routes 810, 820, 850, and 860; and the Blue Line and the Orange Line trolley.

Traffic speeds and volumes are generally favorable for bicycle travel. There are, however, challenging slopes north of B Street along this corridor. There was only one bicycle crash reported from 2002 to 2007 (at the intersection of 8th Avenue and Broadway).

This high priority project ranked 29th out of the top 40 with an average weighted prioritization score of 15.5 points.

Proposed Improvements

- Roadside Signage (30 signs @ $400/EA)
- Class II traffic striping (19,853 LF @ $1/LF)
- Class II pavement markings (30 markings @ 14 SF/marking = 420 SF @ $5/SF)

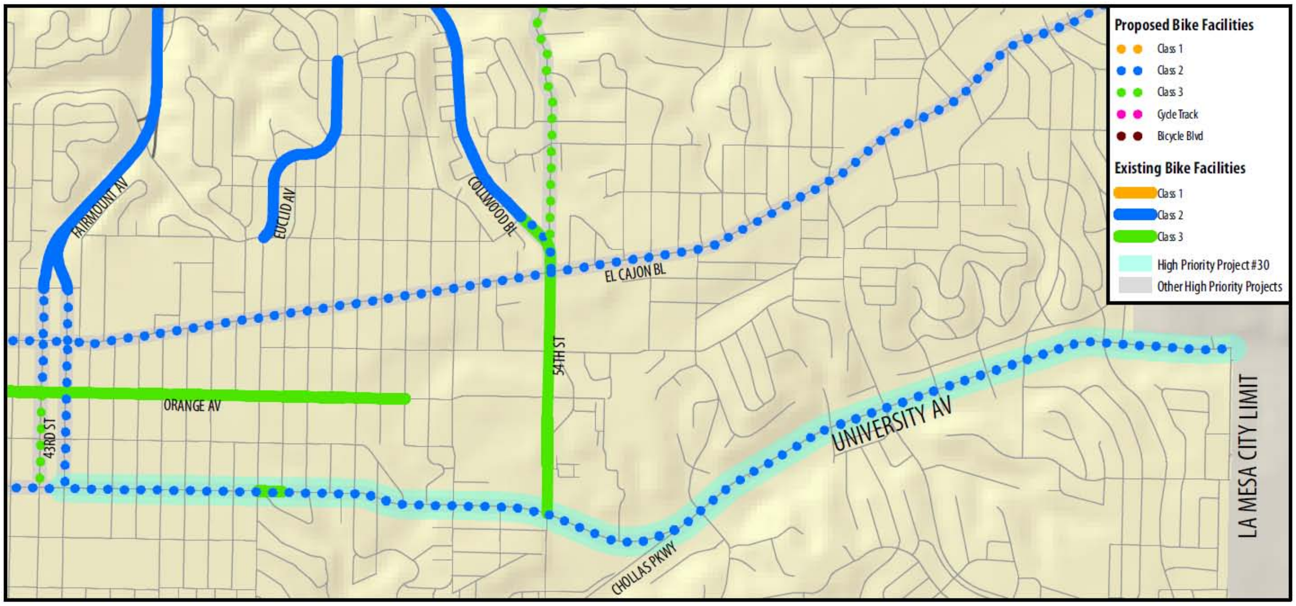
Cost

$52,966

Project 29 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$3,395
2	Roadside Sign (EA)	$12,000
3	Paint Traffic Stripe - Two Coat (LF)	$19,853
4	Paint Pavement Marking - Two Coat (SF)	$2,100
5	Mobilization (LS)	$3,395
	Subtotal	$40,743
	Contingency (30%)	$12,223
	Total Construction	**$52,966**

Project 30 – University Avenue: Fairmont Avenue to La Mesa city limit



Project Description

This project serves travel demands between the City Heights and Eastern Area communities by providing Class II bicycle facilities along University Avenue from Fairmont Avenue to the La Mesa city limit.

This high priority project is over three miles long and connects the Mid-City residential neighborhoods along the University Avenue mixed use corridor, improving access to employment and shopping opportunities, as well as bus transit. This project corridor also provides connections to local bus Routes 7, 10, 13, 856, 936, and 955.

Bicycling issues along the proposed project include thirty-four bicycle accidents between 2002 and 2007, including six at the intersection of 54th Street and University Avenue and five at the Chollas Parkway and University Avenue intersection. Travel speeds of 35 to 40 mph are also relatively high along the project corridor, as are traffic volumes (15,700 to 27,000 ADTs). Topography is flat and amenable to bicycling.

This high priority project ranked 30th of the top 40 with an average weighted prioritization score of 15.5 points.

Proposed Improvements

- Remove traffic striping (33,669 LF @ $1.65/LF)
- Remove asphalt concrete (9,327 SF @ $7/SF)
- Remove concrete curb (5,012 LF @ $17/LF)
- Install asphalt pavement (346 tons @ $120/ton)
- Roadside signage (73 signs @ $400/EA)
- Class II and traffic striping (70,838 LF @ $1/LF)
- Class II pavement markings (30 markings @ 14 SF/marking = 420 SF @ $5/SF)
- Bicycle Detector Loop (18 @ $1,000/EA)
- High Conflict Area Treatment (3 areas @ $2,500/area)

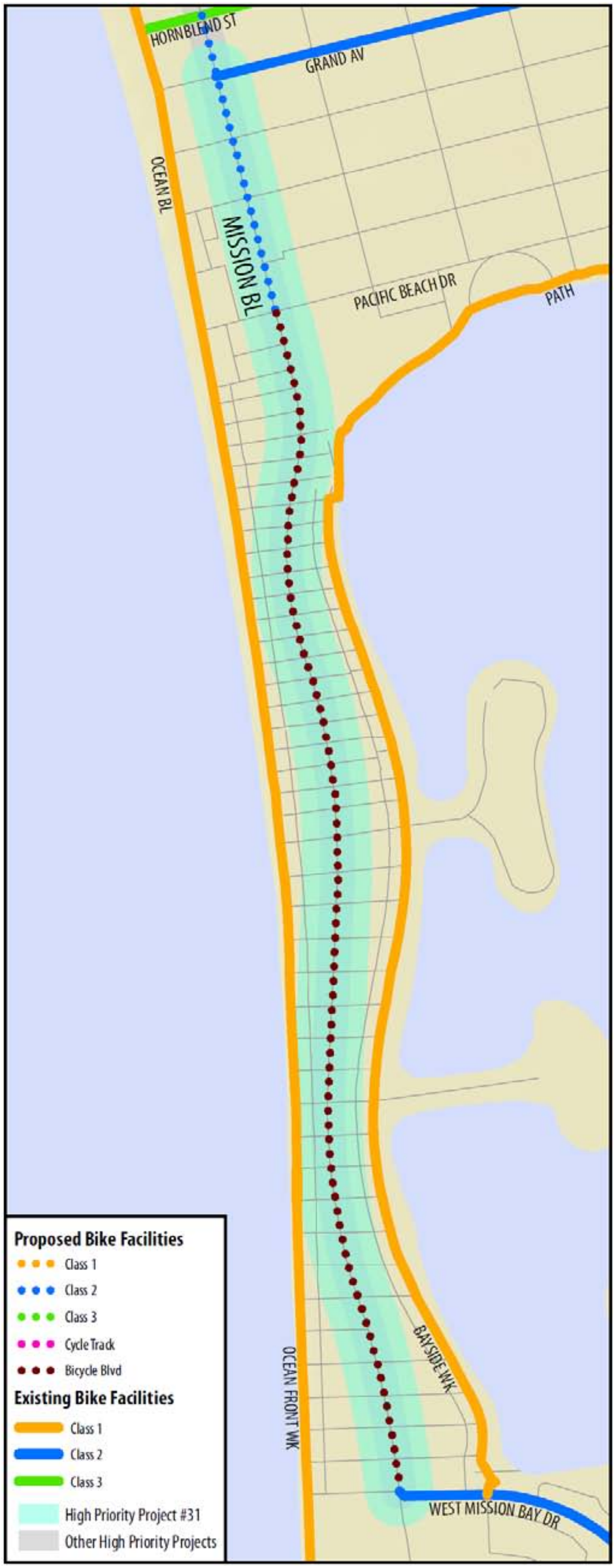
Cost

$583,371

Project 30 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$36,771
2	Remove Traffic Stripe (LF)	$55,554
3	Remove Asphalt Concrete (SF)	$65,289
4	Remove Concrete Curb (LF)	$85,204
5	Asphalt Pavement (Ton)	$41,520
6	Roadside Sign - One Post (EA)	$29,200
7	Paint Traffic Stripe - Two Coat (LF)	$70,838
8	Paint Pavement Marking - Two Coat (SF)	$2,100
9	Bicycle Detector Loop EA)	$18,000
10	High Conflict Treatment (LS)	$7,500
11	Mobilization (LS) 10%	$36,771
	Subtotal	$448,747
	Contingency (30%)	$134,624
	Total Construction	**$583,371**

Project 31 – Mission Boulevard: Grand Avenue to West Mission Bay Drive



Project Description

This project serves bicycle demands between Pacific Beach and Mission Beach by providing Class II bicycle facilities along Mission Boulevard from Grand Avenue to Pacific Beach Drive and Bicycle Boulevard facilities along Mission Boulevard from Pacific Beach Drive to West Mission Bay Drive.

This high priority project is over a mile and a half long and connects the residential and commercial districts of Pacific Beach and Mission Beach to key land uses including recreational uses and other beach and bay destinations. This project provides connections to local bus Routes 8 and 9, and to express bus Route 30.

Traffic speeds and volumes, as well as topography, are amenable to bicycle travel. There were a high number of bicycle crashes (29 crashes) between 2002 and 2007, including five at the intersection of Mission Boulevard and Pacific Beach Drive.

This high priority project ranked 31st of the top 40 with an average weighted prioritization score of 15.4 points.

Proposed Improvements

- Remove traffic striping (33,640 LF @ $1.65/LF)
- Roadside signage (39 signs @ $400/EA)
- Class II and traffic stripe (22,500 LF @ $1/LF)
- Class II pavement markings (6 markings @ 14 SF/EA = 84 SF @ $5/SF)
- Bicycle Boulevard pavement markings (16 markings @ 38 SF/EA = 608 SF @ $5/SF)
- Bicycle Detector Loop (10 @ $1,000/EA)
- Signal modification (3 @ $15,000/EA)

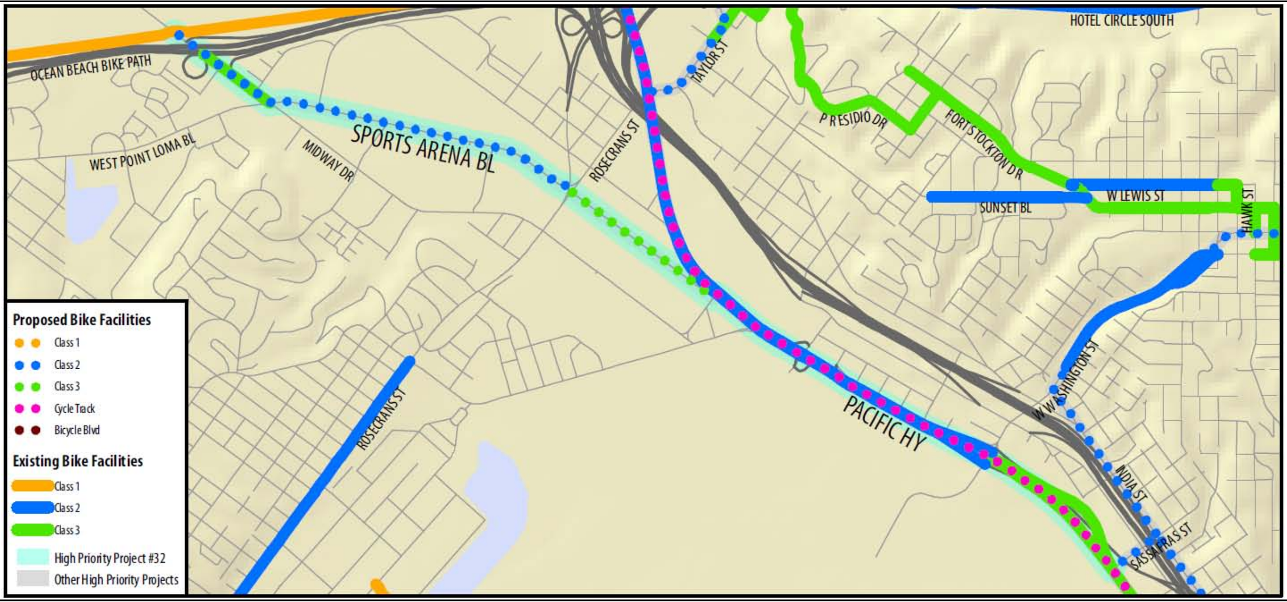
Cost

$237,224

Project 31 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$15,207
2	Remove Traffic Stripe (LF)	$55,506
3	Roadside Sign - One Post (EA)	$15,600
4	Paint Traffic Stripe - Two Coat (LF)	$22,500
5	Paint Pavement Marking - Two Coat (SF)	$3,460
6	Bicycle Detector Loop (EA)	$10,000
7	Modify Signal (EA)	$45,000
8	Mobilization (LS) 10%	$15,207
	Subtotal	$182,480
	Contingency (30%)	$54,744
	Total Construction	**$237,224**

Project 32 – Sports Arena Boulevard: Ocean Beach Bike Path to Pacific Highway; Pacific Highway: Sports Arena Boulevard to Sassafras Street



Project Description

This project serves bicycle demands between Mission Bay Park, the Midway District, and western Midtown by providing Class II bicycle facilities along Sports Arena Boulevard from the Ocean Beach Bike Path to Rosecrans Street, providing Class III facilities along Sports Arena Boulevard from Rosecrans Street to Pacific Highway, and upgrading the existing Class II facilities to a Cycle Track along Pacific Highway from Sports Arena Boulevard to Sassafras Street. This high priority project is over three miles long and connects the commercial neighborhoods of Midway, Ocean Beach, Peninsula, Old Town, and Uptown. It also connects existing and proposed bicycle facilities to recreational beach and bay locations and to downtown uses including major bus and trolley transit stations. This project provides connections to local bus Routes 8, 9, 10, 28, and 35, and express bus Routes 30 and 150. Bicycling issues along the proposed project include travel speeds of 35 mph and volumes between 2,300 and 38,400 ADTs along Sports Arena Boulevard, and travel speeds of 45 to 65 mph and volumes between 8,000 and 58,200 ADTs along Pacific Highway. Seventeen bicycle crashes were reported between 2002 and 2007, including six at the intersection of Sports Arena Boulevard and Rosecrans Street. The intersections at Sports Arena Boulevard/ Midway Drive and Sports Arena Boulevard/Pacific Highway are also both difficult for bicyclists. Topography along this corridor is generally amenable to bicycle travel. This high priority project ranked 32nd of the top 40 with an average weighted prioritization score of 15.4 points.

Proposed Improvements

- Remove traffic striping (45,350 LF @ $1.65/LF)
- Remove Asphalt Concrete (101,490 SF @ $7/SF)
- Remove Concrete Curb (3,490 LF @ $15/LF)
- Remove Concrete Sidewalk (1,350 SF @ $8/SF)
- Install Asphalt Pavement (4,220 tons @ $120/ton)
- Install Concrete Curb (16,070 LF @ $30/LF)
- Install Concrete Paving (79 CY @ $1,000/CY)
- Roadside Signage (56 signs @ $400/EA)
- Class II and traffic striping (42,970 LF @ $1/LF)
- Class II pavement markings (20 markings @ 14 SF/marking = 668 SF @ $5/SF)
- Signal Modifications (6 signals @ $15,000/EA)
- Install Bicycle Detector Loops (23 detectors @ $1,000/EA)
- High Conflict Intersection Treatments (23 intersections @ $2,500)

Cost

$3,372,548

Project 32 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$216,710
2	Remove Traffic Stripe (LF)	$74,828
3	Remove Asphalt Concrete (SF)	$710,430
4	Remove Concrete Curb (LF)	$59,330
5	Remove Concrete Sidewalk (SF)	$10,800
6	Asphalt Pavement (Ton)	$506,400
7	Roadside Sign - One Post (EA)	$22,400
8	Minor Concrete (Curb and Gutter) (LF)	$482,100
9	Minor Concrete Sidewalk 4" (CY)	$79,000
10	Paint Traffic Stripe - Two Coat (LF)	$42,970
11	Paint Pavement Marking - Two Coat (SF)	$3,340
12	Bicycle Detector Loop EA)	$23,000
13	Modify Signal (EA)	$90,000
14	High Conflict Treatment (LS)	$62,500
15	Mobilization (LS) 10%	$210,460

Subtotal	$2,594,268
Contingency (30%)	$778,280
Total Construction	**$3,372,548**

Project 33 – Mission Boulevard: Turquoise Street to Grand Avenue

Project Description

This project serves bicycle demands between La Jolla and Pacific Beach by upgrading existing Class III bicycle facilities to Class II along Mission Boulevard from Turquoise Street to Law Street, and by providing Class II bicycle facilities along Mission Boulevard from Law Street to Grand Avenue.

This high priority project is over a mile long and connects the southern residential and commercial districts of La Jolla with residential and commercial districts in Pacific Beach and to recreational beach and bay destinations. This project provides connections to local bus Routes 8, 9, and 27, and express bus Route 30.

Bicycling issues along the proposed project include twenty-nine bicycle crashes between 2002 and 2007, including seven at the intersection of Mission Boulevard and Felspar Street. Posted traffic speeds are 35 mph and volumes are between 7,700 and 27,100 ADTs along Mission Boulevard.

This high priority project ranked 33rd of the top 40 with an average weighted prioritization score of 15.0 points.

Proposed Improvements

- Remove traffic striping (12,600 LF @ $1.65/LF)
- Roadside signage (40 signs @ $400/EA)
- Class II and traffic striping (14,740 LF @ $1/LF)
- Class II pavement markings (42 markings @ 14 SF/marking = 588 SF @ $5/SF)
- Bicycle Detector Loop (18 @ $1,000/EA)

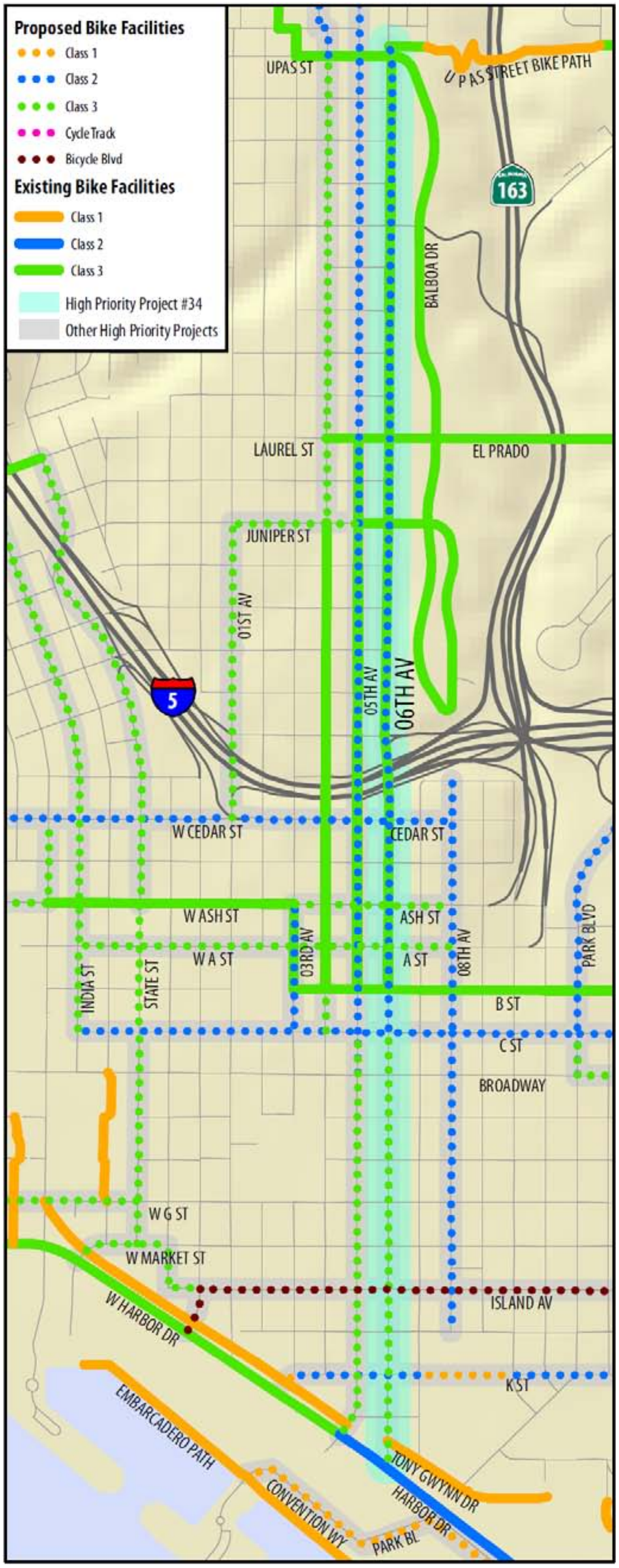
Cost

$108,373

Project 33 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$5,447
2	Remove Traffic Stripe (LF)	$20,790
3	Roadside Sign - One Post (EA)	$16,000
4	Paint Traffic Stripe - Two Coat (LF)	$14,740
5	Paint Pavement Marking - Two Coat (SF)	$2,940
6	Bicycle Detector Loop (EA)	$18,000
7	Mobilization (LS) 10%	$5,447
	Subtotal	$83,364
	Contingency (30%)	$25,009
	Total Construction	**$108,373**

Project 34 – 6th Avenue: Upas Street to Harbor Drive



Project Description

This project serves bicycle demands between the Uptown neighborhoods of Hillcrest and Parkwest and the Center City neighborhoods of Little Italy, Cortez, Columbia, and Gaslamp by upgrading existing Class III bicycle facilities to Class II facilities along 6th Avenue from Upas Street to C Street and Class III facilities along 6th Avenue from C Street to Harbor Drive.

This high priority project is over two miles long and connects the residential, recreational, and commercial districts of Hillcrest, Uptown, Balboa Park, and Centre City to many downtown key land uses. The project serves local bus Routes (Routes 2, 3, 7, 11, 15, 901, 923, 929), express bus Routes (Routes 20, 30, 50, 150, 210), and premium express Routes (Routes 810, 820, 850, 860), as well as major commercial and employment centers.

Bicycle transportation issues along the project include relatively high rates of travel (35-40 mph), as well as eight bicycle crashes between 2002 and 2007, including two at the intersection of 6th Avenue and B Street. Topography and traffic volumes along the project are generally amenable to bicycle travel.

This high priority project ranked 34th of the top 40 with an average weighted prioritization score of 14.8 points.

Proposed Improvements

- Remove traffic stripe (23,940 LF @ $1.65/LF)
- Remove asphalt concrete (1,200 SF @ $7/SF)
- Remove concrete pavement (1,800 SF @ $9/SF)
- Remove concrete curb (1,200 LF @ $17/LF)
- Install asphalt pavement (90 tons @ $120/ton)
- Roadside signage (117 signs @ $400/EA)
- Class II and traffic striping (45,200 LF @ $1/LF)
- Class II pavement markings (35 markings @ 14 SF/marking = 490 SF @ $5/SF)
- Class III pavement markings (9 markings @ 14 SF/marking = 126 SF @ $5/SF)
- Bicycle Detector Loop (14 @ $1,000/EA)

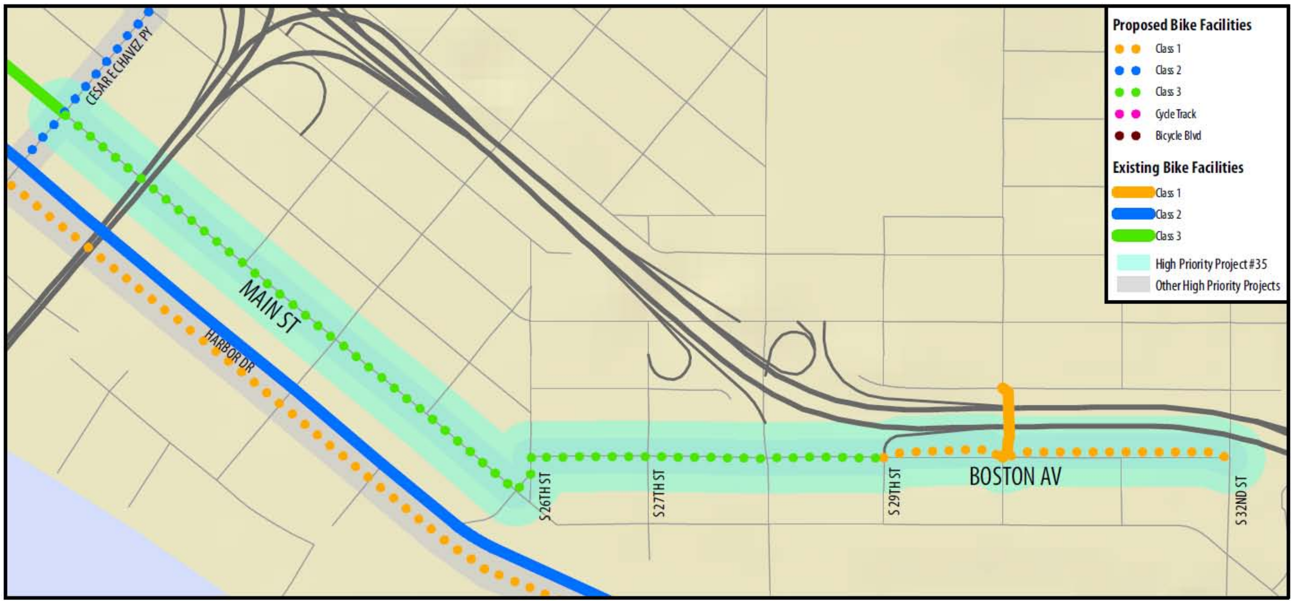
Cost

$315,225

Project 34 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$19,040
2	Remove Traffic Stripe (LF)	$39,501
3	Remove Asphalt Concrete (SF)	$8,400
4	Remove Concrete Pavement (SF)	$16,200
5	Remove Concrete Curb (LF)	$20,400
6	Asphalt Pavement (Ton)	$10,800
7	Roadside Sign - One Post (EA)	$46,800
8	Paint Traffic Stripe - Two Coat (LF)	$45,220
9	Paint Pavement Marking - Two Coat (SF)	$3,080
10	Bicycle Detector Loop (EA)	$14,000
11	Mobilization (LS) 10%	$19,040
	Subtotal	$242,481
	Contingency (30%)	$72,744
	Total Construction	**$315,225**
	Parking Removed	154 spaces

Project 35 – Main Street: Cesar E. Chavez Parkway to 26th Street; 26th Street: Boston Avenue to Main Street; Boston Avenue: 26th Street to 32nd Street



Project Description

This project serves bicycle demands through Barrio Logan by providing Class III bicycle facilities along Main Street from Cesar E. Chavez Parkway to 26th Street, Class III bicycle facilities along 26th Street from Boston Avenue to Main Street, Class III bicycle facilities on Boston Avenue from 26th Street to 29th Street, and Class I bicycle facilities on Boston Avenue from 29th Street to 32nd Street.

This high priority project is over one mile long and connects the residential neighborhoods of southern Centre City and Barrio Logan. It also connects to several stops along local bus Routes 901 and 929.

Travel speeds and volumes along this proposed project are generally amenable to bicycle travel and there was only one reported accident between 2002 and 2007, occurring at the intersection of 28th Street and Main Street.

This high priority project ranked 35th of the top 40 with an average weighted prioritization score of 14.6 points.

Proposed Improvements

- Install Class I asphalt pavement (594 tons @ $120/ton)
- Roadside signage (42 signs @ $400/EA)
- Class I centerline striping (2,006 LF @ $1/LF)
- Class III pavement markings (31 markings @ 14 SF/EA = 434 SF @ $5/SF)

Cost

$144,794

Project 35 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$9,226
2	Asphalt Pavement (Ton)	$71,280
3	Roadside Sign - One Post (EA)	$16,800
4	Paint Traffic Stripe - Two Coat (LF)	$2,006
5	Paint Pavement Marking - Two Coat (SF)	$2,170
6	Mobilization (LS) 10%	$9,226
	Subtotal	$110,708
	Contingency (30%)	$33,212
	Total Construction	**$143,920**

Project 36 – Morena Boulevard: Gesner Street to Tecolote Road; West Morena Boulevard: Morena Boulevard to Linda Vista Road

Project Description

This project serves bicycle demands along the western edges of Clairemont Mesa and Linda Vista by providing Class II bicycle facilities along Morena Boulevard from Gesner Street to Tecolote Road and along West Morena Boulevard from Morena Boulevard to Linda Vista Road.

This high priority project is over two miles long and connects the residential and commercial neighborhoods of Clairemont Mesa and Linda Vista with the Linda Vista Trolley Station and commercial areas. The project also connects with several stops along local bus Route 105.

Bicycling issues along the proposed project include high travel speeds (45-50 mph) along Morena Boulevard and six bicycle crashes between 2002 and 2007, including three at the intersection of Morena Boulevard and Tecolote Road. Topography and traffic volumes along the project are both amenable to bicycle travel.

This high priority project ranked 36h of the top 40 with an average weighted prioritization score of 14.3 points.

Proposed Improvements

- Remove traffic striping (43,780 LF @ $1.65/LF)
- Roadside signage (89 signs @ $400/EA)
- Class II and traffic stripe (49,180 LF @ $1/LF)
- Class II pavement markings (63 markings @ 14 SF/EA = 882 SF @ $5/SF)
- Bicycle Detector Loop (24 @ $1,000/EA)

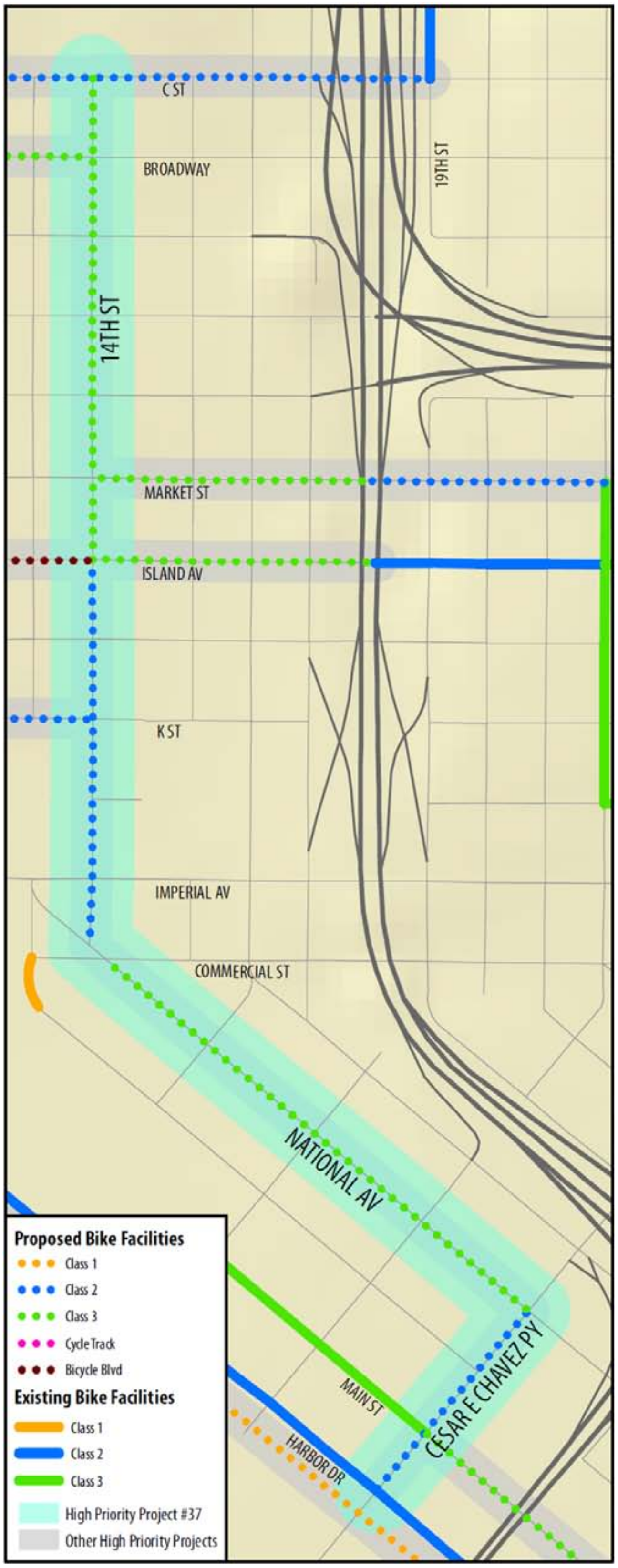
Cost

$289,267

Project 36 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$18,543
2	Remove Traffic Stripe (LF)	$72,237
3	Roadside Sign - One Post (EA)	$35,600
4	Paint Traffic Stripe - Two Coat (LF)	$49,180
5	Paint Pavement Marking - Two Coat (SF)	$4,410
6	Bicycle Detector Loop	$24,000
7	Mobilization (LS) 10%	$18,543
	Subtotal	$222,513
	Contingency (30%)	$66,754
	Total Construction	**$289,267**
	Remove Parking	35 spaces

Project 37 – 14th Street: C Street to Commercial Street; National Avenue: Commercial Street to Cesar E. Chavez Parkway; and Cesar E. Chavez Parkway: National Avenue to Harbor Drive



Project Description

This project serves bicycle demands between the Center City neighborhoods of East Village and Barrio Logan by providing Class III bicycle facilities along 14th Street from C Street to Market Street and along National Avenue from Commercial Street to Cesar E. Chavez Parkway, and Class II bicycle facilities along 14th Street from Market Street to Commercial Street and along Cesar E. Chavez Parkway from National Avenue to Harbor Drive.

This high priority project is over a mile and a half long and connects the residential and commercial neighborhoods of East Village with Barrio Logan. It also serves local bus Routes 3, 5, 901, and 929 and express bus Route 210.

Bicycling issues along this proposed project include three bicycle accidents between 2002 and 2007, including two at the intersection of 14th Street and Imperial Avenue. Traffic speeds and volumes, as well as topography are amenable to bicycle transportation.

This high priority project ranked 37th out of the top 40 with an average weighted prioritization score of 15.5 points.

Proposed Improvements

- Roadside Signage (40 signs @ $400/EA)
- Painted Class II traffic striping (13,728 LF @ $1/LF)
- Painted Class II pavement markings (16 markings @ 14 SF/marking = 224 SF @ $5/SF)
- Painted Class III pavement markings (24 pavement markings @ 14 SF/marking = 336 SF @ $5/SF)

Cost

$50,744

Project 37 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS)	$3,253
2	Roadside Sign (EA)	$16,000
3	Paint Traffic Stripe - Two Coat (LF)	$13,728
4	Paint Pavement Marking - Two Coat (SF)	$2,800
5	Mobilization (LS)	$3,253
	Subtotal	$39,034
	Contingency (30%)	$11,710
	Total Construction	**$50,744**

Project 38 – Mission Valley San Diego River Bike Path

Project Description

This project serves intra-community bicycle demands in Mission Valley by providing Class I bicycle facilities along the San Diego River Bike Path from Hotel Circle Place to the western terminus of the Fashion Valley Bike Path (at Fashion Valley Road), Class II facilities along Fashion Valley Road from Friars Road to Hotel Circle North, along Hotel Circle North from Fashion Valley Road to Hotel Circle South, and by upgrading the existing Class III bicycle facilities to Class I facilities along Camino de la Reina from Hotel Circle North to the western terminus of the existing Class I South San Diego River Bike Path. This project also proposes closing a short gap in the existing Class II facility along Hotel Circle South near the intersection with Hotel Circle North.

This high priority project is approximately two and a half miles long and provides a much needed continuation of the Class I South San Diego River Bike Path and the Fashion Valley Bike Path west to the Ocean Beach Bike Path. This project provides connections to local bus Routes 6, 14, 25, 41, and 928; express bus Routes 20 and 120; premium express Routes 810, 820, 850, and 860; and the Green Line trolley.

Bicycling issues along this project corridor include traffic speeds of 25 mph along Camino de la Reina and 35 mph along Fashion Valley Road and Hotel Circle South, and traffic volumes from 9,100 to 18,700 ADTs along Camino de la Reina, approximately 13,300 ADTs along Fashion Valley Road, and from 17,000 to 23,400 ADTs along Hotel Circle North. This segment reports a total of two bicycle crashes from 2002 – 2007, and has relatively flat topography.

This high priority project ranked 35th of the top 40 with an average weighted prioritization score of 14.6 points.

Proposed Improvements

- Remove traffic striping (9,000 LF @ $1.65/LF)
- Install Class II asphalt pavement (6,180 SF @ $50/SF)
- Install Class I asphalt pavement (71,385 SF @ $50/SF)
- Roadside signage (25 signs @ $400/EA)
- Class II and traffic striping (21,200 LF @ $1/LF)
- Class I painted centerline (8,923 LF @ $1/LF)
- Class II pavement markings (24 markings @ 14 SF/marking = 336 SF @ $5/SF)
- Lighting (20 street lights @ $3,000/EA)
- Bicycle Detector Loop (8 @ $1,000/EA)

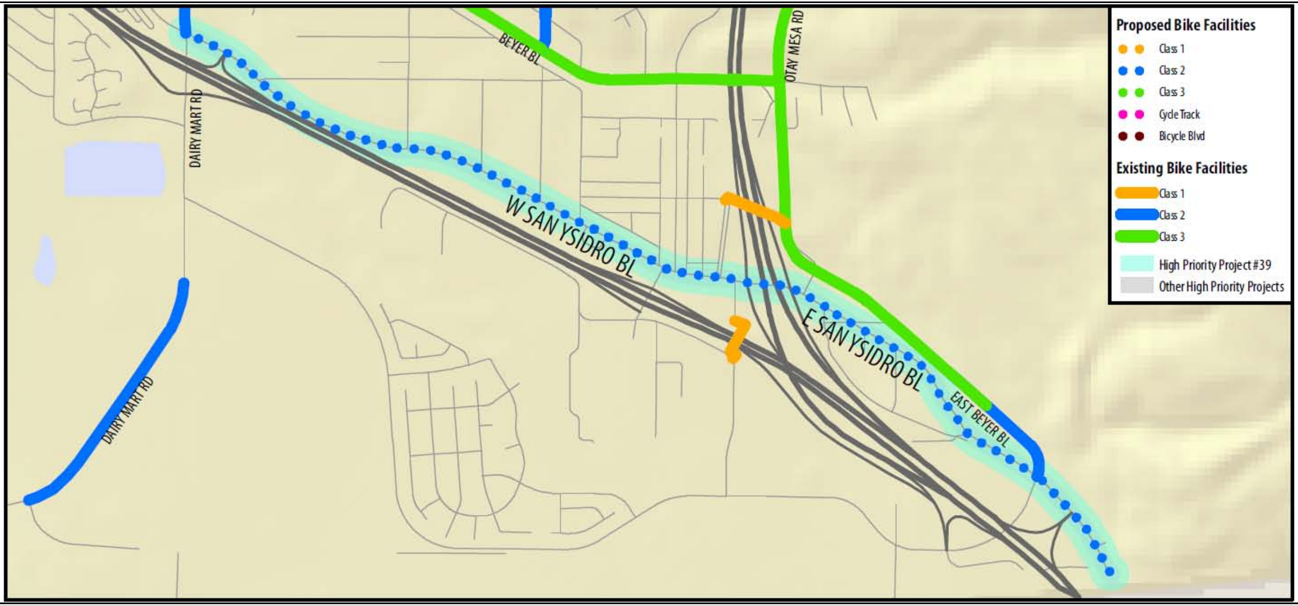
Cost

$6,244,528

Project 38 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$400,290
2	Remove Traffic Stripe (LF)	$14,850
3	Asphalt Pavement (SF)	$3,878,250
4	Roadside Sign - One Post (EA)	$10,000
5	Paint Traffic Stripe - Two Coat (LF)	$30,123
6	Paint Pavement Marking - Two Coat (SF)	$1,680
7	Lighting (City Street) (LS)	$60,000
8	Bicycle Detector Loop EA)	$8,000
9	Mobilization (LS) 10%	$400,290
	Subtotal	$4,803,483
	Contingency (30%)	$1,441,045
	Total Construction	**$6,244,528**

Project 39 –San Ysidro Boulevard: Dairy Mart Road to the southern terminus of San Ysidro Boulevard



Project Description

This project serves bicycle demands through central San Ysidro to the International Border Crossing by providing Class II bicycle facilities along San Ysidro Boulevard from Dairy Mart Road to the southern terminus of San Ysidro Boulevard.

This high priority project is over two miles long and connects the residential and commercial districts of San Ysidro with existing and proposed bicycle lanes, key land uses including local bus Routes 929 and 932 and the Blue Line trolley, and the international border with Mexico.

Bicycling issues along the proposed project include seven bicycle crashes between 2002 and 2007. Traffic volumes and speeds, as well as area topography are amenable to bicycle travel. However, there is a difficult freeway crossing at the I-5 Ramps.

This high priority project ranked 39th of the top 40 with an average weighted prioritization score of 13.1 points.

Proposed Improvements

- Remove traffic striping (35,120 LF @ $1.65/LF)
- Roadside signage (48 signs @ $400/EA)
- Class II and traffic striping (37,900 LF @ $1/LF)
- Class II pavement markings (48 markings @ 14 SF/EA = 672 SF @ $5/SF)
- Bicycle detector loop (24 @ $1,000/EA)

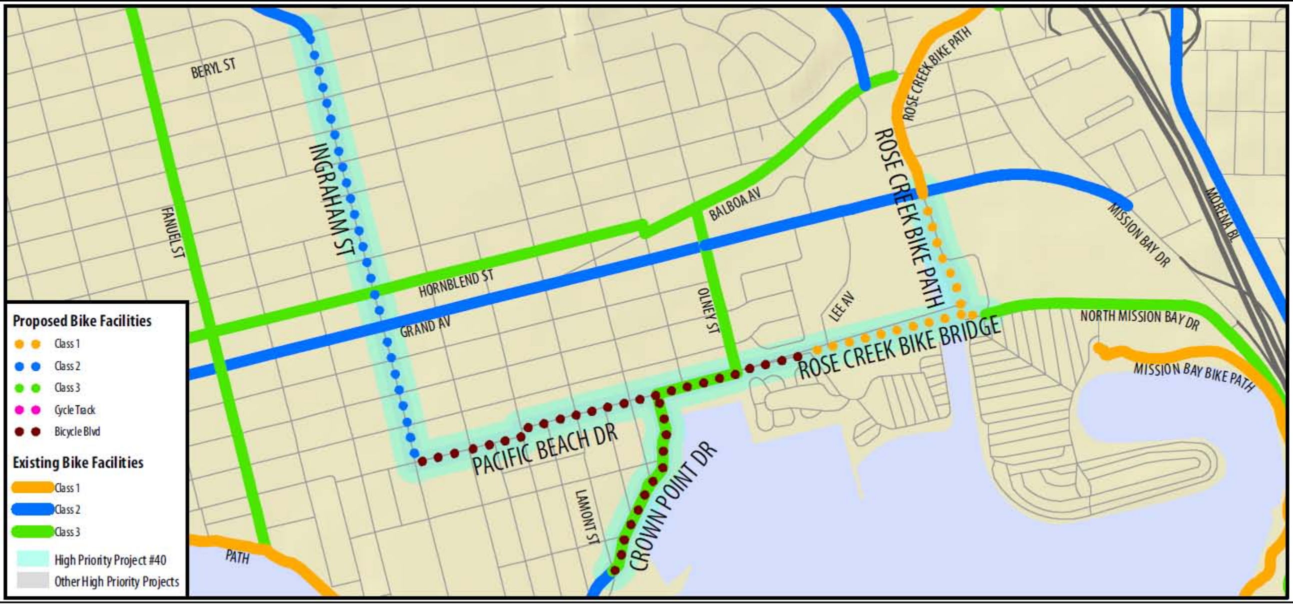
Cost

$222,157

Project 39 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$14,241
2	Remove Traffic Stripe (LF)	$57,948
3	Roadside Sign - One Post (EA)	$19,200
4	Paint Traffic Stripe - Two Coat (LF)	$37,900
5	Paint Pavement Marking - Two Coat (SF)	$3,360
6	Bicycle Detector Loop	$24,000
7	Mobilization (LS) 10%	$14,241
	Subtotal	$170,890
	Contingency (30%)	$51,267
	Total Construction	**$222,157**
	Remove Parking	18 spaces

Project 40 – Pacific Beach to Rose Creek



Project Description

This project serves bicycle demands between Pacific Beach and Mission Bay Park by providing Class II bicycle facilities along Ingraham Street from Beryl Street to Pacific Beach Drive, Bicycle Boulevard facilities along Pacific Beach Drive from Ingraham Street to the eastern terminus of Pacific Beach Drive and along Crown Point Drive from Pacific Beach Drive to Lamont Street. In addition, the project recommends Class I bicycle facilities, including over the Rose Creek Bike Bridge, from the eastern terminus of Pacific Beach Drive to the northern terminus of North Mission Bay Drive, and upgrading the currently substandard Class I facility along Rose Creek Bike Path from Grand Avenue to the northern terminus of North Mission Bay Drive.

This high priority project is over two and a half miles long and connects the residential, commercial, and recreational districts of southeastern Pacific Beach and northern Mission Bay Park to key recreational and tourism land uses including the beach and the bay. This project follows local bus routes 8, 9, and 27 and connects to express bus Route 30.

Bicycling issues along the proposed project include relatively high travel speeds (35-40 mph) along Ingraham Street and Pacific Beach Drive, as well as 23 reported bicycle crashes between 2002 and 2007, including four at the intersection of Ingraham Street and Thomas Street. Topography, as well as roadway traffic volumes, are amenable to bicycle travel along the remainder of this project.

This high priority project ranked 40th of the top 40 with an average weighted prioritization score of 12.6 points.

Proposed Improvements

- Remove traffic striping (15,780 LF @ $1.65/LF)
- Install Class I asphalt pavement (25,766 SF @ $50/SF)
- Roadside signage (70 signs @ $400/EA)
- Class I centerline striping (3,221 LF @ $1/LF)
- Class II and traffic striping (27,900 LF @ $1/LF)
- Class II pavement markings (82 markings @ 14 SF/EA = 1,148 SF @ $5/SF)
- Bicycle Boulevard pavement markings (18 markings @ 14 SF/EA = 252 SF @ $5/SF)
- Bicycle Detector Loop (12 @ $1,000/EA)

Cost

$2,171,798

Project 40 – Cost Estimate

Item No.	Item	Preliminary Cost Estimate
1	Traffic Control System (LS) 10%	$139,218
2	Remove Traffic Stripe (LF)	$26,037
3	Asphalt Pavement (SF)	$1,288,300
4	Roadside Sign - One Post (EA)	$28,000
5	Paint Traffic Stripe - Two Coat (LF)	$31,121
6	Paint Pavement Marking - Two Coat (SF)	$6,720
7	Bicycle Detector Loop (EA)	$12,000
8	Mobilization (LS) 10%	$139,218
	Subtotal	$1,670,614
	Contingency (30%)	$501,184
	Total Construction	**$2,171,798**
	Remove Parking	129 spaces

Cost Estimates for Maintenance and Operations

The total annual maintenance cost of the bicycle network, as shown in **Table 8.4**, is estimated at approximately $4.4 million per year when fully implemented. Bicycle facility maintenance costs are based on per mile estimates, which cover labor, supplies, and amortized equipment costs for weekly trash removal, monthly sweeping, and bi-annual resurfacing and repair patrols. Other maintenance costs include restriping bike lane lines, sweeping debris, and tuning signals for bicycle sensitivity.

Table 8.4: Annual Operations and Maintenance Cost Estimates for Recommended Bikeway Network

Facility/Program	Unit Cost[1]	Description	Miles	Cost	Notes
Class I Maintenance *(including Cycle Track)*	$17,000	Annual Cost per Mile	178.0	$3,026,000	Lighting and debris and vegetation overgrowth removal
Class II Maintenance *(including facility classified as Class II or Class III)*	$2,000	Annual Cost per Mile	547.1	$1,094,200	Repainting lane stripes and stencils, sign replacement as needed
Class III Maintenance *(including Bicycle Boulevard)*	$1,000	Annual Cost per Mile	319.0	$319,000	Sign and shared use stencil replacement as needed
		Avg. Cost/Year	1044.1	$4,439,200	

Source: Alta Planning + Design, February 2010

Notes:
1. Unit costs based on Alta Planning + Design experience with similar bikeway systems, and "Trails for the 21st Century: Planning, Design and Management Manual for Multi-Use Trails," published by the Rails-to-Trails Conservancy, 2001.

As part of the normal roadway maintenance program, extra emphasis should be put on keeping the bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility or creeping into the roadway. The other typical maintenance costs for the bikeway network include the maintenance of signage, striping and stencils.

Funding Sources

Potential funding sources for bicycle projects, programs and plans can be found at all levels of government. This section covers federal, state, regional and local sources of bicycle funding, as well as some non-traditional funding sources that may be used for bicycle projects. All the projects are recommended to be implemented over the next two to twenty years, or as funding is available. The more expensive projects may take longer to implement. In addition, many funding sources are highly competitive, and therefore it is impossible to determine exactly which projects will be funded by which funding sources.

Federal Funding

The primary federal source of surface transportation funding, including bicycle and pedestrian facilities, is SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. SAFETEA-LU is the fourth iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and renewed in 1998 and 2003 through the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA). Also known as the federal transportation bill, the $286.5 billion SAFETEA-LU bill passed in 2005 and authorizes Federal surface transportation programs for the five-year period between 2005 and 2009. As of September 30, 2009, SAFETEA-LU has expired, though the bill's programs have been kept alive at a 30% reduction in funding by Congress through a series of continuing resolutions.

Administration of SAFETEA-LU funding occurs through the State (Caltrans and the State Resources Agency) and through regional planning agencies. Most, but not all, of these funding programs are oriented toward utilitarian transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. SAFETEA-LU programs require a local match of 11.47%.

Specific funding programs under SAFETEA-LU include, but are not limited to:

- Congestion Mitigation and Air Quality (CMAQ)
- Recreational Trails Program
- Safe Routes to School Program
- Transportation, Community and System Preservation Program

These and other federal funding sources are summarized in the following sections.

Congestion Mitigation and Air Quality Improvement Program

Congestion Mitigation and Air Quality Improvement funds are programmed by the Federal transportation bill for projects that are likely to contribute to the attainment of a national ambient air quality standard, and congestion mitigation. These funds can be used for a broad variety of bicycle and pedestrian projects, particularly those that are developed primarily for transportation purposes. The funds can be used either for construction of bicycle transportation facilities and pedestrian walkways or for non-construction projects related to safe bicycle and pedestrian use (maps, brochures, etc.). The projects must be tied to a plan adopted by the State and SANDAG.

Recreational Trails Program

The Recreational Trails Program of SAFETEA-LU provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include bicycling, hiking, in-line skating, and equestrian use. In California, the funds are administered by the California Department of Parks and Recreation. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails; including unpaved trails;
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

$4.6 million dollars was available to California jurisdictions of through the Recreational Trails Program in 2009. More information is available at www.fhwa.dot.gov/environment/rectrails/index.htm.

Safe Routes to School (SRTS) Program

Authorized under Section 1404 of SAFETEA-LU, the Safe Routes to School (SRTS) Program came into effect in August, 2005. Consistent with other federal-aid programs, each State Department of Transportation (DOT) is held responsible for the development and implementation of grant funds made available to the states through this new program throughout the life of SAFETEA-LU. Some expected outcomes of the program include:

- Increased bicycle, pedestrian, and traffic safety around schools;
- More children walking and bicycling to and from schools;
- Decreased traffic congestion around schools;
- Reduced childhood obesity;
- Improved air quality, community safety and security, and community involvement;
- Improved partnerships among schools, local agencies, parents, community groups, and nonprofit organizations.

A minimum of 70 percent of each year's apportionment will be made available for infrastructure projects with up to 30 percent for non-infrastructure projects.

SRTS INFRASTRUCTURE PROJECTS

Infrastructure projects are engineering projects or capital improvements that will substantially improve safety and the ability of students to walk and bicycle to school. They typically involve the planning, design, and construction of facilities within a two mile radius from a grade school or middle school. The maximum funding cap for an infrastructure project is $1 million. Caltrans does not set minimum caps. The project cost estimate may include eligible direct and indirect costs.

Eligible projects may include but are not limited to:

- New bicycle trails and paths, bicycle racks, bicycle lane striping and widening, new sidewalks, widening of sidewalks, sidewalk gap closures, curbs, gutters, and curb ramps. Also includes new pedestrian trails, paths, and pedestrian over and under crossings, roundabouts, bulbouts, speed bumps, raised intersections, median refuges, narrowed traffic lanes, lane reductions, full or half-street closures, and other speed reduction techniques.

- Included in the category of traffic control devices are: new or upgraded traffic signals, crosswalks, pavement markings, traffic signs, traffic stripes, in-roadway crosswalk lights, flashing beacons, bicycle-sensitive signal actuation devices, pedestrian countdown signals, vehicle speed feedback signs, pedestrian activated upgrades, and all other pedestrian and bicycle-related traffic control devices.

Infrastructure projects should directly support increased safety and convenience for children in K-8 (including children with disabilities) to walk and bicycle to school.

SRTS NON-INFRASTRUCTURE PROJECTS

Non-infrastructure projects are education/encouragement/enforcement activities that are intended to change community behavior, attitudes, and social norms to make it safer for children in Grades K-8 to walk and bicycle to school. Non-infrastructure projects should increase the likelihood of programs becoming institutionalized once in place. Deliverables from a non-infrastructure project must be clearly stated in the application and tangible samples must be attached to the final invoice or Progress Report; i.e., sample training materials or promotional brochures. The funding cap for a non-infrastructure project is $500,000. Multi-year funding allows the applicant to staff up and deliver their project over the course of four (4) years, thereby reducing overhead and increasing project sustainability.

Transportation, Community, and System Preservation Program (TSCP)

Implementation grants under the TCSP Program are intended to provide financial resources to states, metropolitan planning organizations, local governments and tribal governments to enable them to carry out activities that address transportation efficiency while meeting community preservation and environmental goals. Examples of such policies or programs include: spending policies that direct funds to high-growth regions of the country; urban growth boundaries to guide metropolitan expansion; green corridors" programs that provide access to major highway corridors for areas targeted for efficient and compact development.

Land and Water Conservation Fund

The Land and Water Conservation Fund allocates money to state and local governments to acquire new land for recreational purposes, including bicycle paths and support facilities such as bike racks. The Fund is administered by the National Parks Service and the California Department of Parks and Recreation and has been reauthorized until 2015.

Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation facilities are eligible to apply. Applicants must fund the entire project, and will be reimbursed for 50 percent of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use. The grant process for local agencies is competitive, and 60 percent of grants are reserved for Southern California.

In 2009, approximately $1.25 million was allocated to fund recommended projects in California.

Rivers, Trails and Conservation Assistance Program

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance–there are no implementation monies available. Projects are prioritized for assistance based upon criteria which include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments.

Transportation Enhancement (TE) Activities

Transportation Enhancement (TE) Activities are a subset of federal Surface Transportation Program funds whose aim is to help expand travel choice and enhance the transportation experience. Included in the list of activities eligible for funding are the provision of pedestrian and bicycle facilities and the provision of pedestrian and bicycle safety and educational activities. California's annual allocation of TE funds through the end of the SAFETEA-LU bill was $74.5 million. In 2007, about $6.7 million dollars of federal TE funds were spent in the San Diego region, mostly on pedestrian and bicycle projects.

Regional Surface Transportation Program

The Regional Surface Transportation Program (RSTP) is a block grant program established by the State of California utilizing federal funding made available for surface transportation projects. Though most of this funding gets earmarked for highway and transit projects, pedestrian and bicycle projects are still eligible to receive funds from this source. In California, $225 million (76%) of RSTP funds are allocated annually to California's 11 largest urbanized areas with populations greater than 200,000 people. Under the RSTP, the San Diego Association of Governments (SANDAG) is authorized to prioritize and approve projects that receive RSTP funds in the San Diego region. Agencies can transfer funding from other federal transportation sources to the RSTP program in order to gain more flexibility in the way the monies are allocated.

State Funding Programs

This section summarizes the primary state bicycle project and planning funding sources.

Bicycle Transportation Account

The State of California Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the emphasis is on projects that benefit bicycling for commuting purposes. As of 2009, the BTA makes $7.2 million available each year. The local match is a minimum of 10% of the total project cost.

BTA projects are intended to improve safety and convenience for bicycle commuters, and can include, but are not limited to, any of the following:

- New bikeways serving major transportation corridors
- New bikeways removing travel barriers to potential bicycle commuters
- Secure bicycle parking at employment centers, park-and-ride lots, rail and transit terminals, and ferry docks and landings
- Bicycle-carrying facilities on public transit vehicles
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel
- Elimination of hazardous conditions on existing bikeways
- Planning
- Improvement and maintenance of bikeways

Eligible project activities include: project planning, preliminary engineering, final design, right-of-way acquisition, and construction and/or rehabilitation.

Environmental Enhancement and Mitigation Program (EEMP)

Environmental Enhancement and Mitigation Program (EEMP) Funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to equalize the effects of vehicular emissions, and the acquisition or development of roadside recreational facilities, such as trails. State gasoline tax monies fund the EEMP, which annually allocates $10 million for mitigation projects.

Office of Traffic Safety (OTS) Grant

Office of Traffic Safety Grants (OTS) fund safety programs and equipment. Bicycle and Pedestrian Safety is a specifically identified priority. This category of grants includes enforcement and education programs, which can encompass a wide range of activities, including bicycle helmet distribution, design and printing of billboards and bus posters, other public information materials, development of safety components as part of physical education curriculum, or police safety demonstrations through school visitations.

The grant cycle typically begins with a request for proposals in October, which are due the following January. In 2006, OTS awarded $103 million to 290 agencies.

Recreational Trails Program (RTP)

The Recreational Trails Program provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Development and rehabilitation of trailside and trailhead facilities and trail linkages;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails (with restrictions for new trails on federal lands);
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

Safe Routes to School (SR2S) Program

Established in 1999, the State-legislated Safe Routes to School (SR2S) program came into effect with the passage of AB 1475. In 2001, SB 10 was enacted which extended the program for three additional years. In 2004, SB 1087 was enacted to extend the program three more years. And in 2007, AB 57 was enacted to extend the program indefinitely. Seven (7) cycles of the SR2S program have been completed. The list of awarded projects is typically announced in the fall.

The goals of the program are to reduce injuries and fatalities to school children and to encourage increased walking and bicycling among students. The program achieves these goals by constructing facilities that enhance safety for pedestrians and bicyclists, primarily students in grades K-12 who walk or bicycle to school. By enhancing the safety of the pathways, trails, sidewalks, and crossings, the likelihood of attracting and encouraging other students to walk and bicycle increases.

The SR2S program is primarily a construction program. Projects funded by the program are intended to improve the safety of students who walk or bicycle to school. Construction improvements must be made on public property. Improvements can be made on public school grounds providing the cost is incidental to the overall cost of the project. The program typically provides approximately $25 million annually statewide. The maximum reimbursement percentage for any SR2S project is ninety percent. The maximum amount of SR2S funds that will be allocated to any single project is $900,000.

Eligible project elements include bicycle facilities, traffic control devices and traffic calming measures. Up to 10% of funding provided for an individual project can be used for Outreach, Education, Encouragement, and/or Enforcement activities. Regarding funding projections, the 2008 cycle is anticipated to provide $48.5 million in funding. A letter from the Safe Routes to School National Partnership to the California Air Resources Board recognized that awards were part of "the volatile state budget process."

This California SR2S program should not be confused with the Federal Highway Administration's (FHWA) Safe Routes to School (SRTS) program authorized under SAFETEA-LU. Although both programs have similar goals and objectives, their funding source, local funding match requirements and other program requirements are different (see following section).

TDA Article III (SB 821)

Transportation Development Act Article 3 funds are distributed by the State of California and administered at the county level, which can be used by cities for planning and construction of bicycle and pedestrian facilities. SANDAG administers this program and establishes its policies within the San Diego region.

These funds are allocated annually on a per capita basis to both cities and the County of San Diego. Local agencies may either draw down these funds or place them on reserve. SANDAG allocates TDA funds in conjunction with the TransNet progam. The TDA/TransNet program is described in the next section.

TDA Article 3 funds may be used for the following activities related to the planning and construction of bicycle and pedestrian facilities:

- Engineering expenses leading to construction.
- Right-of-way acquisition.
- Construction and reconstruction.
- Retrofitting existing bicycle and pedestrian facilities, including installation of signage, to comply with the Americans with Disabilities Act (ADA).
- Route improvements such as signal controls for bicyclists, bicycle loop detectors, rubberized rail crossings and bicycle-friendly drainage grates.
- Purchase and installation of bicycle facilities such as secure bicycle parking, benches, drinking fountains, changing rooms, rest rooms and showers which are adjacent to bicycle trails, employment centers, park-and-ride lots, and/or transit terminals and are accessible to the general public.

Regional Funding Sources

Regional bicycle grant programs come from a variety of sources, including SAFETEA-LU, the State budget, vehicle registration fees, bridge tolls and local sales tax. Most regional funds are allocated by regional agencies such as SANDAG.

TDA and TransNet Call for Pedestrian and Bicycle Projects

In addition to TDA revenue which comes from state sales tax, the San Diego region levies an additional ½ cent local sales tax to fund transportation projects under the TransNet program. In 2004, TransNet was extended for 40 years by voters. Each year, the SANDAG Board of Directors allocates funds under the Transportation Development Act (TDA) and the TransNet local sales tax program to support non-motorized transportation projects in the San Diego region. For FY 2010, approximately $7.7 million was available for allocation. These funds serve as part of the Regional Housing Needs Incentive Program. The *Implementation Guidelines for SANDAG Regional Housing Needs Assessment Memorandum* (Board Policy No. 33) sets forth guidelines for incentives related to the Regional Housing Needs Assessment (RHNA) for the 2005-2010 Housing Element cycle. Eligibility for the TDA/TransNet bicycle and pedestrian funds depend upon compliance with Board Policy No. 033, TDA Project Eligibility, and TransNet Project Eligibility.

In addition to the eligibility requirements, if applicable, certain SANDAG Claim Requirements must be met. The application must be completed and received in early February.

TransNet Smart Growth Incentive Program

The TransNet Smart Growth Incentive Program (SGIP) funds transportation and transportation related infrastructure improvements and planning efforts that support smart growth development. This program is a longer-term version of SANDAG's Pilot Smart Growth Incentive Program, which uses funding incentives to encourage coordinated regional planning to bring transit service, housing, and employment together in smart growth development. The pilot program distributed $22.5 million in grants to 16 smart growth projects in the San Diego region in 2005.

The program funds two grant types: capital projects and planning projects. The goal of SGIP is to fund public infrastructure projects and planning activities that will support compact, mixed-use development focused around public transit, and will provide more housing and transportation choices. The projects funded under this program will serve as models for how good infrastructure and planning can make smart growth an asset to communities in a variety of settings. Grants range from $200,000 to $2,000,000 for capital projects and $50,000 to $400,000 for planning projects.

Project Screening Criteria include:

- Local Commitment/Authorization
- Funding Commitment
- Funding Eligibility

Project Evaluation Criteria include:

- Project Readiness (Level of Project Development)
- Smart Growth Area Land Use Characteristics (Intensity of Development; Land Use and Transportation Characteristics of Project Area; Urban Design Characteristics of Project Area; Related Land Development Projects; Affordable Housing)
- Quality of Proposed Project (Bicycle Access Improvements; Pedestrian Access Improvements; Transit Facility Improvements; Streetscape Enhancements; Traffic Calming Features; Parking Improvements)
- Matching Funds
- Low Income Household Bonus Points

Local Funding

New Construction

Future road widening and construction projects are one means of providing bike lanes and sidewalks. To ensure that roadway construction projects provide these facilities where needed, appropriate and feasible, it is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this Plan.

Impact Fees

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements, which will encourage residents to bicycle rather than drive. In-lieu parking fees may be used to help construct new or improved bicycle parking. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

Mello Roos

Bike paths, lanes, and pedestrian facilities can be funded as part of a local assessment or benefit district. Defining the boundaries of the benefit district may be difficult unless the facility is part of a larger parks and recreation or public infrastructure program with broad community benefits and support.

Other

Local sales taxes, fees, and permits may be implemented, requiring a local election. Parking meter revenues may be used according to local ordinance. Volunteer programs may substantially reduce the cost of implementing some of the proposed bikeways. Using groups such as the California Conservation Corp (who offer low cost assistance) can be effective at reducing project costs. Local schools or community groups may use the bikeway or pedestrian project as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations 'adopt' a bikeway and help construct and maintain the facility.

Other opportunities for implementation will appear over time, which may be used to implement the system.

Appendix A: BTA Compliance Checklist

BTA Compliance Checklist

In order to meet the California Bicycle Transportation Act requirements, the 2010 San Diego Bicycle Master Plan includes the following elements:

Table A.1 – San Diego Bicycle Master Plan BTA Compliance Checklist

BTA 891.2	Required Plan Elements	Location Within the Plan
(a)	The estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.	Table 5.14; p. 108 Table 5.15; p. 111-112 Table 5.16; p. 113-114 Figure 5-6; p. 75
(b)	A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, and major employment centers.	Text p. 13 Figure 3-1; p. 15 Figure 3-2; p. 17
(c)	A map and description of existing and proposed bikeways.	Text p. 13-25 Table 3.2; p. 20 Figures 3-3A & 3-3B; p. 21 & p. 23 Text p. 115, 127 Table 6.1; p. 127 Figure 6-7A & 6-7B; p. 131 & 133 Table 6.3; 145-147
(d)	A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers.	Text p. 25-27 Figure 3-4; p. 29 Text p. 159-161
(e)	A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals.	Text p. 33, 37-38 Figure 3-4; p. 29 Figure 3-6; 35 Text p. 166-167
(f)	A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.	Text p. 27 Figure 3-5; p.31 Text p. 161
(g)	A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code.	Text p. 39-40 Text p. 169-171
(h)	A description of the extent of citizen and community involvement in development of the plan.	Text p. 99, 103-106 Appendix B Appendix C
(i)	A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans.	Text p. 43-60 Text and maps p. 115-127
(j)	A description of the projects proposed in the plan and a listing of their priorities for implementation.	Table 6.1; p. 127 Figure 6-7A & 6-7B; p. 131 & 133 Table 6.3; p. 145-147 Figures 6-15A, 6-15B, & 6-15C; p. 153,155, & 157 Project Sheets 1 – 40; p. 179-257
(k)	A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.	Table 8.1; p. 175-176 Text p. 176-177 Table 8.2; p. 177 Table 8.3; p. 178

Source: Alta Planning + Design, March 2010

Appendix B: San Diego Regional Bicycle Plan Survey Data

San Diego Regional Bicycle Plan Survey Data

This appendix summarizes city of San Diego residents' survey responses to the San Diego Regional Bicycle Plan bicycle survey. On October 30, 2008 the San Diego Regional Bicycle Plan online survey database contained 1,672 responses. Nine hundred and eighty-five of the 1,672 participants (59 percent) were identified as city of San Diego residents based on the residential information provided by survey respondents. The 985 surveys collected via the regional planning effort fed directly into the Plan recommendations, along with the 574 survey responses collected through this planning process, as summarized in Chapter 5.

Figure 1 shows the number of respondents by zip code, as well as the number of respondents normalized by 2008 total population estimates. Figure 1 indicates that the geographic distribution of survey respondents is relatively even with the exception of the southeastern San Diego, Otay Mesa, San Ysidro, Miramar Air Station, Mira Mesa, Black Mountain Ranch and San Pasqual neighborhoods. As **Table A.1** shows, no zip code accounts for more than 7.2 percent of the total 985 San Diego survey responses. Strong response rates are found in the coastal and urban core zip codes; generally areas with land use and population characteristics that are correlated with higher bicycling propensity.

Table A.1: San Diego Resident Regional Bicycle Plan Survey Respondents by Zip Code

Zip Code	Number of Respondents	Percent of San Diego Respondents
92103	71	7.2 %
92122	71	7.2 %
92104	68	6.9 %
92037	66	6.7 %
92109	62	6.3 %
92116	60	6.1 %
92101	49	5.0 %
92129	44	4.5 %
92117	40	4.1 %
92124	40	4.1 %
92107	39	4.0 %
92115	38	3.9 %
92126	36	3.7 %
92111	35	3.6 %
92130	35	3.6 %
92128	27	2.7 %
92106	24	2.4 %
92120	23	2.3 %
92110	22	2.2 %
92131	22	2.2 %
92102	18	1.8 %
92108	16	1.6 %
92127	15	1.5 %
92119	13	1.3 %
92121	11	1.1 %

Zip Code	Number of Respondents	Percent of San Diego Respondents
92123	9	0.9 %
92105	8	0.8 %
92114	7	0.7 %
92154	7	0.7 %
92139	4	0.4 %
92113	2	0.2 %
92173	2	0.2 %
92093	1	0.1 %
Total	985	100 %

Source: Alta Planning + Design, November, 2008

Table A.2 summarizes city of San Diego respondents' bicycle facility preferences, showing preferences for off-street paved bike paths, on-street bike lanes, and bike boulevards.

Table A.2: City of San Diego Survey Respondents' Bikeway Preferences

Bicycle Facility Type	1 Highly Preferred	2	3	4 Not at all Interested
Off-Street Paved Bike Paths	73.4 %	15.6 %	8.2 %	2.8 %
On-Street Bike Lanes	43.8 %	41.6 %	11.5 %	3.1 %
Bike Routes	26.1 %	33.0 %	29.7 %	11.2 %
Unpaved Trails or Dirt Paths	15.0 %	18.2 %	28.2 %	38.6 %
Bicycle Boulevards	43.0 %	34.3 %	17.5 %	5.2 %

Source: Alta Planning + Design, November, 2008

Table A.3 presents San Diego survey respondents' responses to a question asking if certain improvements would influence them to bicycle more frequently. As shown, 64.2% of respondents indicate that adding more bike lanes on major streets would encourage them to bike, followed closely by more paved (off-street) bike paths and increased maintenance of bikeways.

Table A.3: Improvements Influencing Ridership According to City of San Diego Survey Respondents

Improvement	Very Likely	Likely	Somewhat Likely	Somewhat Unlikely	Unlikely	Very Unlikely
More Bike Lanes on Major Streets	69.3 %	18.4 %	8.4 %	1.6 %	0.7 %	1.6 %
More Paved (off-street) Bike Paths	66.2 %	15.1 %	10.5 %	2.9 %	2.7 %	2.6 %
Increased Maintenance	51.6 %	21.3 %	19.5 %	4.4 %	1.4 %	1.8 %
Widen Outside Curb Lanes on Major Streets	50.2 %	27.7 %	14.4 %	3.5 %	2.3 %	1.9 %
Bicycle Boulevards	44.7 %	25.2 %	17.7 %	5.7 %	4.0 %	2.7 %
More Bike Routes	41.6 %	22.9 %	21.0 %	5.9 %	5.3 %	3.3 %
More On-Road Bike Signage	29.1 %	16.1 %	29.9 %	14.4 %	6.9 %	3.6 %
More Bicycle Parking/Storage	24.5 %	19.5 %	25.6 %	14.6 %	10.4 %	5.4 %

Source: Alta Planning + Design, November, 2008

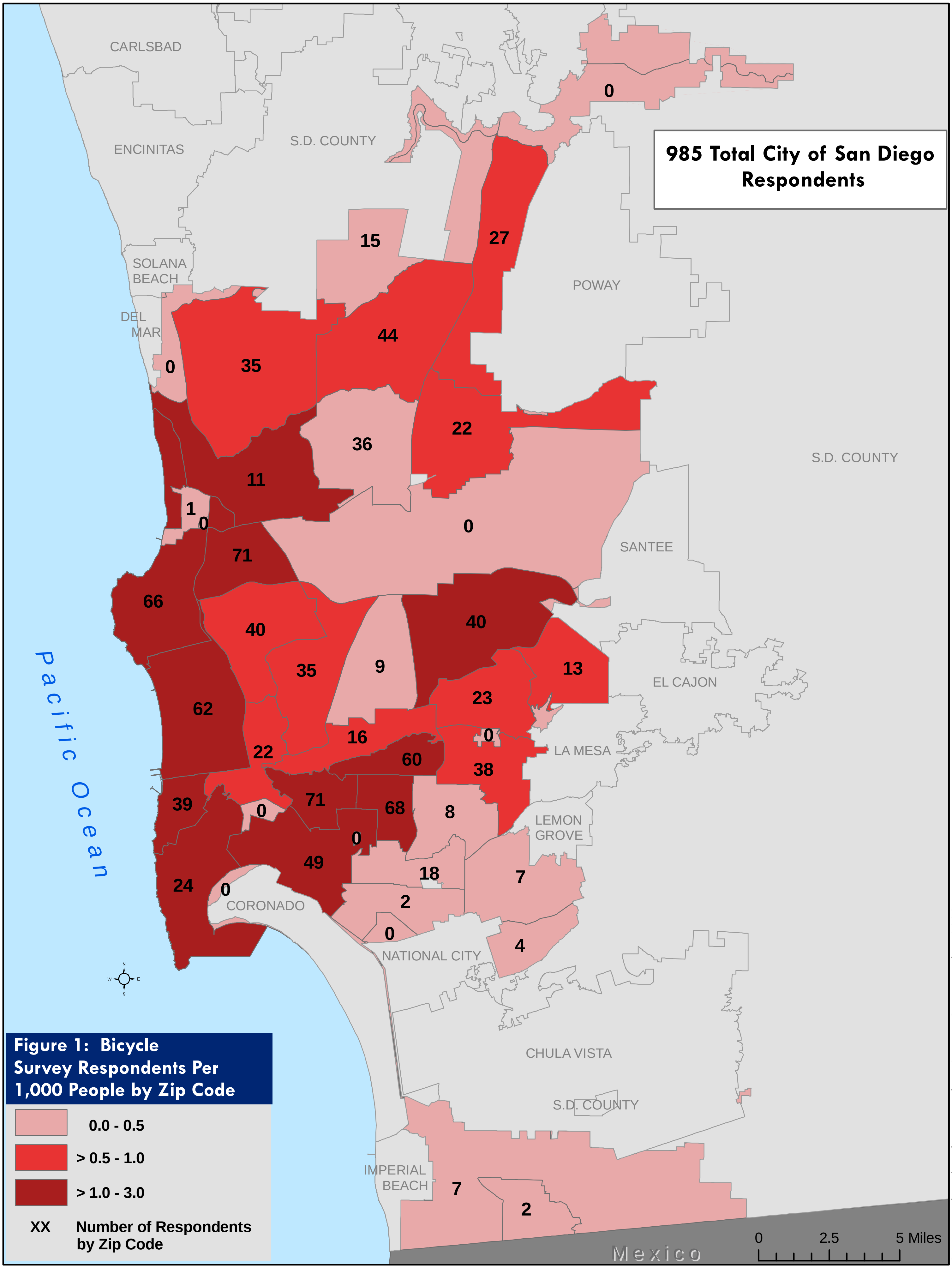


Figure 1: Bicycle Survey Respondents Per 1,000 People by Zip Code

Source: Alta Planning + Design; SANDAG; November 2008

Table A.4 shows that when asked about education and encouragement programs they have participated in, an overwhelming 61% of respondents indicate that they have participated in Bike to Work Day, a far greater number in comparison with any other programs or classes offered.

Table A.4: Programs and classes attended by San Diego Survey Respondents

Program	Percent of Responses
Bike to Work Day	61.0 %
Elementary School Bicycle Safety Education Program	9.0 %
San Diego Bicycle Coalition Classes	6.5 %
Pedal to the Park	4.6 %
Cycling Sundays at Petco Park	2.3 %
Safe Routes to School Event	1.3 %
Other *(please specify)*	8.2 %

Source: Alta Planning + Design, November, 2008

Table A.5 indicates that the highest percentage of San Diego survey respondents would be interested in user-friendly bicycle maps and guides, followed by a public awareness campaign focused on bicyclists rights, responsibilities, and the health and environmental benefits of bicycling and interest in a bicycling information website.

Table A.5: San Diego Survey Respondents' Level of Interest in Developing or Expanding Bicycle Programs

Program Type	1 Highly Interested	2	3	4 Not at all Interested
User-friendly Bicycle Maps and Guides	64.4 %	26.5 %	5.9 %	3.2 %
Public Awareness Campaign Focused on Bicyclists Rights, Responsibilities, and the Health and Environmental Benefits of Bicycling	63.9 %	25.8 %	6.5 %	3.8 %
One-stop Bicycle Information Website	59.3 %	27.7 %	10.2 %	2.8 %
Route Planning for Bicyclists (511 service)	50.8 %	29.5 %	13.4 %	6.3 %
Education Programs for Motorists	45.9 %	27.4 %	16.4 %	10.3 %
Education Programs for Elementary, Middle/Junior, and High School Students	43.2 %	33.4 %	15.7 %	7.7 %
Education Programs for Law Enforcement Personnel	35.6 %	32.0 %	20.9 %	11.5 %
Community Support Encouragement Programs, such as the Diamond Awards Program	31.9 %	34.1 %	24.2 %	9.9 %
Education Programs for Adult Cyclists	31.5 %	35.6 %	22.9 %	10.0 %

Source: Alta Planning + Design, November, 2008

Table A.6 presents San Diego survey respondents' motivations for bicycling. As shown, 91.5% of respondents living in San Diego bicycle for exercise/health reasons, followed by 82.2% responding that they bicycle for enjoyment and 61.8% bicycle to get to work.

Table A.6: Reasons for Bicycling - Regional survey input

Reason	Percent of Respondents
For exercise / health reasons	91.5 %
For pleasure	82.2 %
To get to work	61.8 %
For shopping / errands	43.3 %
To get to transit	16.1 %
To get to school	12.0 %
I don't bike	1.2 %
Other *(please specify)*	7.8 %

Source: Alta Planning + Design, November, 2008

Table A.7 shows that San Diego respondents' most common average riding distance for a one-way trip is 11 to 24 miles. This average is significantly higher than the average of 3 -5 miles reported by respondents' to the City of San Diego Bicycle Master Plan bicycle survey.

Table A.7: Average Bicycling Distance (one-way)

Miles	Percent of Respondents
Under 2 miles	10.6 %
3 – 5 miles	18.8 %
6 – 10 miles	25.5 %
11 – 24 miles	32.2 %
25 miles and above	12.9 %
Total	100 %

Source: Alta Planning + Design, November, 2008

Appendix C: Public Workshop Comments

PUBLIC COMMENTS COLLECTED VIA THE COMMENT BOX

Note: The following is a list of the comments open house attendees recorded on comment cards provided and collected at the open house sign-in table. They are transcribed here exactly as they appear on the comment cards.

- We need to think outside the box, as well as make improvements to roads and bike lanes. We can make San Diego, especially the urban core, much more bicycle-oriented. This will cut down on pollution, gasoline costs to consumers, and make our city more of a tourist destination and friendly community oriented. Please think outside the box: What would make people want to ride more in San Diego? We've already got the perfect climate!
- Regional bike maps are very small, hard to read, and vague. Something as simple as bike lanes on every road, or a division to make it safer to bike on public roads. Freeway on and off ramps should have yield or no turn on red signs. Poor road conditions and uneven roads need more attention and need to get properly addressed. Also, more community involvement is necessary. I'm a San Diego resident, and I never received any meeting information in the mail. Had I not been a SD Triathlon Club member, I would not have heard about this meeting. Those of us who do bike do not want to rely on public transportation, therefore we bike. In the city, it's unfortunately more efficient to take a car, since most streets aren't safe or bike friendly. One would think that if we could make bike/transit more accessible, we could help stop the destruction of our environment, and help keep our city and state a more beautiful place. Lastly, it's good that I didn't bike the 10 miles here tonight, since there was nowhere to park my bike.
- I'm confident that the plan will do a good job of identifying needed programs and facilities. To be a success however, it has to establish a strong policy framework for implementation. Start by creating a city bicycle advisory committee for instance.
- No Facilities Board, where are suggestions for these lanes and sharrows, etc.? No traffic calming or road diet suggested areas as well. Or suggestions for parking removals or additions.
- What about the unincorporated communities? Build a website to consolidate bike issues across all spectrums.
- Thanks for the forum. Suggestion: Two large maps: 1. Existing Bike Routes, 2. Planned Bike Routes (distribute maps too).
- Thank you for having the open house. So glad bike plans are being evaluated. Maps were confusing. Less parking on streets – more bike lanes!
- Good displays. Could use set presentation and bike racks.
- Connect Morena Blvd. to Gilman Dr. along Hwy 5 so bicyclists can have a safe, straight route from Downtown/Old Town/Clairemont/North Park, etc. to UCSD.
- Work with bike shops and create a medium of communication with bicyclists of all types in an effort to increase awareness of bicycle related events and planning efforts.

- Concern – The new bike path on the south side of the SD River was not completed with pavement under the Morena Street bridge just east of the Pacific Hwy bridge which runs east towards the AAA building. An approx. 50' piece of a Class I bike lane has a 6" drop and is very dangerous. If this is a right-of-way issue, should it be open? Liability?
- Educating and encouraging our youth to ride on a daily basis to and from school and for extracurricular activities/sports. Need safe lanes/paths to and from schools. Point Loma schools and parks should all be connected with safe paths. Also, incentives for workers to commute by cycling.
- Please implement these upgrades. We are a fantastic city for bicycling, yet don't have infrastructure to really encourage a commuter culture. We could transform SD into a real biking town! Take on those puny Europeans and people from Oregon! (It rains a lot there, for god's sake!)
- I was at the last open house/meeting and I got all the things I asked for on your new master plan: Washington Ave, Park Ave, 6th Ave, more downtown – Super! Looks great – I hope it all happens. What's the best way for me to stay involved?
- Some PowerPoint slides were too small. Needed to separate.
- As a part of the Grantville Master Plan for Subarea B, a service road is to be connected at the end of Tierrasanta Blvd. This should be opened up to bike traffic, thus establishing an east-west connection from College Ave to the beaches.
- Tunnel on India under Hwy 5 is dark, especially bad is the contrast on bright days. Brighter lighting in tunnel would help. Perhaps "solatube" style to save energy? Bridge connecting Santa Fe to Morena near Costco would enable nicer/shorter commute between UCSD and residences behind Costco. Public education about destination positioning at intersections and door zone avoidance is needed.
- No bike parking at this meeting? Classic!
- Please review the existing conditions/facilities. Many of the facilities need to be updated, i.e. some Class III are now Class II, etc. Better/more education efforts for children and police officers as well as drivers. Motorist education. Include policy to repair bike lanes when roadway is being repaired. Many bike lanes on streets that have been resurfaced have been left alone and in bad condition.
- Please put display boards online.
- It would have been nice to have a sign telling us we could lock our bike inside.
- Good event. I'm glad you're involving the public. Recommendation: do as much as you can to encourage biking as neighborhood transportation instead of using a car. Lots of bike lanes, blvds, etc. are not enough.
- Good workshop format. Station attendees were helpful and informed. Would like to see a calendar for report submission and plan implementation. Also, it would be helpful to know if there will be future opportunities for public input and in which areas.
- We need more signs that say "Share the Road – It's the Law."

- Keep communicating and reach out to the local bicycle clubs.
- Riders using sidewalks – call for increase in outreach efforts/education/enforcement to riders. This is a sign of riders uncomfortable in street – need auto driver awareness/enforcement.
- *See attachment 1 for a typed set of comments submitted at the open house.*

Bicycling Suggestions for the City of San Diego – June 10, 2009

- **Sharrows** – These would be helpful on roadways too narrow for bike lanes, but have a large amount of cycling traffic. Good roads for this would be Mission Bay Dr, San Diego Avenue near Old Town, and 4th and 5th Avenues from Hillcrest to Downtown. The City of Corona has implemented these on a couple of roadways (Rincon St in particular between Smith Ave and Corydon Ave) that connect two segments of the popular Santa Ana River Trail.
- **Signal Modification** – Modifying or fixing the traffic signals to actuate for cyclists, or making the loops visible, would be the greatest benefit for cyclists. Many bicyclists run traffic lights as they do not actuate for them, treating them as a malfunctioning signal. More education about where bicycles must be to actuate the signals would also be helpful. I have found information on the internet, and have had a 95% success rate in most cities.
- **Bike Lanes** – More bike lanes would be helpful, only if they are NOT within the "door zone" of cars and properly maintained. Too often I have seen these lanes creating more dangerous situations for cyclists, mostly due to poor maintenance forcing cyclists out into higher speed traffic.
- **Education** – While mostly at a state level, more education for motorists as to how to share the road with cyclists, especially pertaining to passing distance and bike lanes, would be helpful. Educating cyclists that the rules apply to them as well is also helpful. Law enforcement also needs to be educated as to the rights of cyclists on the roadways. I myself was cited while riding in a legal and safe manner in front of San Diego City College on Park Blvd, while I was riding to work. The citation was for not riding far enough to the right, which was not applicable at the time. Had I been riding the way they wanted, it would have been very unsafe for me, putting me in a position to have to dodge parked cars while going 25 mph, down a hill.
- **Maintenance** – While cars can deal with a lot more bumps, bicycles cannot. It becomes more a safety issue when cyclists have to dodge potholes, possibly coming into higher speed traffic. The additional problem arises when flats or bent rims are caused by these potholes. The cyclist can crash, causing more problems for all involved. Debris strewn bike lanes and shoulders present similar problems, causing flats and forcing the cyclist to dodge the debris. Regular sweeping of these problem areas would drastically reduce these problems, as well as prompt repair of potholes.
- **Bike Paths** – While an expensive undertaking, these can be quite helpful, when implemented properly. Building them as enhanced sidewalks or making them subordinate to all other roadways reduces their utility. Better integration into the network is needed, especially along existing paths. The Rose Canyon path has a rather problematic north end, where it meets Gilman Dr at the I-5 NB offramp. The City of Portland, Oregon, has solved this problem with a bicycle only signal, where a path converges at a similar intersection.

Station 1: Public Involvement Strategy

PUBLIC COMMENTS RECORDED AT STATION 1

- Provide tips to bicyclists, such as where to position one's self in the roadway in order to trigger bicycle-sensitive loop detectors.
- We need a safe bike route that connects Downtown, Mission Hills and Hillcrest.
- A bicycle improvement project is needed on a major east – west Mid-City corridor, such as Adams Avenue or University Avenue.
- Construct bike lanes on El Cajon Boulevard from La Mesa to Park Boulevard. Bike lanes on El Cajon Boulevard would be especially helpful to connect to the Bus Rapid Transit planned for El Cajon Boulevard.
- Better bicycle access to colleges and universities located in San Diego is needed. Access to San Diego State University is particularly inadequate. There is room in the roadway right-of-way to construct bike lanes on College Avenue.
- Fill the gap in facilities on Fashion Valley Road and Hotel Circle N. to connect the bike lanes on Hotel Circle with the San Diego River Pedestrian and Bike Path.
- Money for bicycle facilities should be allocated wisely. More money should be spent on developing bike lanes and routes rather than costly projects like the Lake Hodges Bridge.
- There are no safe bicycle routes to travel in and out of downtown, especially during peak traffic periods.
- Provide more bike lockers at all MTS Trolley stations.
- Maintenance of existing bicycle facilities is extremely important and must be considered when planning new facilities.
- Better lighting of facilities is needed to improve safety.
- There are no safe routes to access schools and parks in Point Loma. Bike lanes on West Point Loma Boulevard are needed, as are safe facilities that connect to Nimitz Boulevard.
- Repair and maintenance of existing facilities is sorely needed.
- Complete the western terminus of the SR-56 Bikeway south of Del Mar.
- Pave the frontage road in Sorrento Valley east of Interstate 5 to connect to the SR-56 Bikeway.
- A bike bridge is needed to connect Morena Boulevard and Santa Fe Street so that bicyclists can avoid using Balboa Avenue.
- Inventory existing bike lanes to identify needed improvements.
- Road construction contractors must be held to standards so that bicyclists are considered in construction zones.

- The San Diego River Pedestrian and Bike Path gap should be filled.
- More bike racks are needed throughout San Diego.
- There is a cement K-rail on Jamacha Road that is obstructing the bike lane. In order to avoid the K-rail, cyclists have to ride in the 50 mile per hour travel lane. The K-rail has been there for a long time and needs to be removed.
- The bike lanes on Harbor Drive are poorly maintained, especially in front of the Naval Station. Crossing the railroad tracks is also difficult.
- Enforce laws that prohibit motorists from parking in bike lanes and people from littering bike lanes.
- The tunnel on India Street between Old Town and Downtown requires better lighting. Explore the possibility of using Solatube technology to light the tunnel.
- Education is perhaps the most important tool we have to improve safety. Campaigns that educate people about door zone danger and destination positioning at intersections is particularly important. Billboards, radio, and television ads should be used to inform the public on these and other bicycling issues.
- There should be a tracking mechanism to record non-collision instances where interactions between bicyclists and motorists cause a bicyclist to crash or almost crash. Kearny Villa Road is an example of a high speed, intimidating roadway where bicyclist/motorist conflicts are frequent however conflicts are not documented unless there is a collision.
- Bike paths are poorly placed, designed, and signed. Better visibility and warning signage is needed at points where bike paths intersect with roadways so that motorists expect cyclists to be entering the roadway from a bike path.
- Bicyclists ride on new bike paths as soon as the pavement surface has hardened, which can be before the path has been officially dedicated. Because the paths are not officially dedicated they aren't maintained and repairs requested will not be addressed.
- The Lake Hodges Bridge has four different surface types which can be dangerous for cyclists who are not anticipating surface changes.
- Connecting bicycle facilities to transit should be prioritized to accommodate long distance commutes.
- Poor surface maintenance is a safety issue.
- Right turns on red should be prohibited on roadways with bike lanes.
- More bicycle-sensitive loop detectors are needed. Also, install pedestrian signals so that the push buttons are within reach of bicyclists so that cyclists do not have to dismount to push the signal.
- Make the public open house material and comments available on the City's website.
- I like the idea of a bicycle boulevard on Meade or Orange Avenue to serve as an alternative to the busy major corridors, such as University Avenue and El Cajon Boulevard.

- There should be bike lanes connecting all of the urban core neighborhoods, including Hillcrest, Mission Hills, North Park and Downtown.
- Advertise future public open houses and workshops on KPBS.
- San Diego should be more bicycle-friendly. With San Diego's weather, more people would bicycle if San Diego was more conducive to bicycling.
- Share the road signage and sharrows are needed throughout San Diego.
- Motorists existing Interstate 5 and turning right onto Gilman Drive block the bike lane that provides access to the Rose Canyon Bike Path despite the signage that directs them to stop behind the line.
- An Environment Impact Report (EIR) was just completed for the San Ysidro Border Station Project, which included no mention of bicyclists needs. This is a good time to intervene and ensure bicycle travel is considered in the project.

Station 2: Review of the Current Bicycle Master Plan

PUBLIC COMMENTS RECORDED AT STATION 2

- There should be a website or hotline for bicyclists to report concerns or poor road conditions.
- There should be a database that is accessible by various cycling organizations and enables cyclists to share information about bicyclists' concerns and complaints.
- It is difficult to load bikes on the University of California – San Diego (UCSD) bus bike racks. UCSD could convene a focus group composed of different types of users to select racks that would accommodate people of all sizes and strength levels.
- Provide more bicycle carrying capacity on MTS buses and dedicate an individual car for bicycle transport on trolley lines by removing all seats in the car designated for bikes.
- Priority should be given to completing gaps in existing bike lanes. Discontinuous bike lanes are a problem.
- Provide guidance to bicyclists about where to position ourselves at intersections so that we are detected by loop detectors and thus able to trigger signals.
- A county-wide bicycle and pedestrian plan with maps is needed.
- Wayfinding signage for cyclists would be very helpful.
- Roadways are not safe for bicyclists. Separated bike paths are needed for safe bicycling.
- San Diego is not a bike-friendly city.
- Street cleaning should be a priority. Bike lane and roadway shoulder maintenance is needed.
- Pave roadway shoulders.
- Include road grade information on bicycle user maps.
- Linda Vista Road and Kearny Villa Road were repaved but the roadway shoulders were not. This is a problem for bicyclists.
- More bicycle-sensitive loop detectors are needed in left turn lanes so that bicyclists aren't forced to wait until a car arrives and activates the light.
- Label neighborhoods on maps.
- Show more graphics at the workshop to describe to cyclists how they would fit into the proposed network. Include plans and sections of example corridors.
- Use painted bike lanes to increase the visibility of bicyclists and facilities.
- Robinson Avenue becomes a narrow bridge between 6th Avenue and 10th Avenue which is difficult for bicyclists to maneuver with traffic.
- Reduce the amount of free on-street parking. Convert parking space to bicycle facilities.

- Sharrows should be added to Class III bike routes.
- There are inaccuracies in the existing facilities shown in the map displayed. There are no existing bike lanes on Mira Mesa Road, as shown on the map. There are bike lanes on Camino Santa Fe that aren't shown on the map. There is no existing facility on Miramar Road; it is a gap. There are bike lanes on Texas Street from Madison Avenue to Camino del Rio S. that aren't shown on the map.
- Traffic calming is greatly needed. University Avenue, Gilman Drive and Park Boulevard would be improved by traffic calming. La Jolla Boulevard in the Bird Rock neighborhood is a good example of effective traffic calming.

Station 3: Bicycle Demands Analysis

PUBLIC COMMENTS RECORDED AT STATION 3

- Schools and the areas surrounding schools should have a higher weight in the Attractors Model.
- Harbor Drive is dangerous through the National Association of Security Companies (NASCO) area. There is debris along the roadway and it needs resurfacing.
- The bike lane on Kearny Villa Road near Miramar Road should be resurfaced and debris should be removed.
- The western terminus of the SR-56 Bikeway is a significant gap.
- An east-west connection through Mid-City is needed.
- High traffic speeds along Adams Avenue in Normal Heights are a problem.
- The lack of stop signs on 30th Street south of University Avenue is a problem because this results in motorists traveling too fast in the residential area between University Avenue and Upas Street.
- On Pershing Drive through Balboa Park the bike lane is located in motorists' blind spot in various places.

Station 4: Proposed Bicycle Network

PUBLIC COMMENTS RECORDED AT STATION 4

- University Ave through Hillcrest and North Park is too treacherous for bicycling.
- An east-west connection through Mid-City is needed on a low-volume roadway parallel to El Cajon Boulevard and University Avenue.
- Motorists on El Cajon Boulevard are inconsiderate toward bicyclists.
- The portions of the bike path connecting Ocean Beach to Hotel Circle that are under construction should be completed.
- Pavement markings are needed to indicate where bicyclists should be positioned to trigger loop detector activated signals.
- Connect the eastern terminus of Hotel Circle S.
- East of Fashion Valley Mall the bike lane on Friars Road drops.
- A bicycle-sensitive sensor is needed on Friars Road on the left turn lane onto east at Ulric Street.
- A bicycle-sensitive senor is needed on Pacific Highway next at the Trolley Center.
- Kearny Villa Road near Balboa Avenue is hazardous to bicyclists.
- An east-west connection thru Mid-City needed.
- San Diego planners should inform themselves about the "Interstate Bicycle Network" program that is under development.
- The four-way stop sign on 30th Street and A Street is located in the wrong place.
- The bike lane on Hotel Circle drops. This is dangerous for inexperienced bicyclists.
- There is an unpaved section of San Diego River Pedestrian and Bike Path.
- Do not include gutter in 5' lane widths. Bike lanes should have two line markings.
- Be caution about the design of bike lanes. The cycle track on Friars Road is not swept.
- Cyclists are trapped in cycle tracks, which is dangerous. Bike lanes are preferred.
- "Share the Road" signs are needed.
- More bike lanes, as opposed to separated paths, are needed.
- Sharrows are desirable.
- More bike-sensitive loop detectors are needed.
- Maintain the density of the proposed network.

Station 5: Prioritization Process

PUBLIC COMMENTS RECORDED AT STATION 5

- Sharrows are needed on all Class III routes. They should be placed outside of the door zone.
- The prioritization maps should include facility types.
- It is important to decide how to allocate priorities considering bicycle boulevards and traffic calming measures require higher treatment levels than sharrows.
- More traffic calming efforts are needed in San Diego. We need livable streets for all pedestrians and bicyclists, particularly surrounding parks, schools, and in university areas.
- Remove free on-street parking on 30th Street or install sharrows to help prevent cyclists colliding with car doors.
- The northern terminus of Black Mountain Road should connect thru to Rancho Bernardo.
- There is a six foot drop in the facility on Morena Boulevard due to road construction.
- Northbound Fairmont Avenue at Montezuma Road is very dangerous.
- The pedestrian/bicycle bridge over I-15, north of SR-94, out of Fairmont Park is very dangerous.
- Commuting out of the I-805/Mira Mesa Boulevard is three miles longer than it should be because the area is boxed in.
- Waring Road northbound from I-8 is uphill and there is not sufficient room for bikes. There are narrow lanes and high speed traffic.
- There is no detection of bicyclists where Bayshore Bikeway intersects F Street. The light never changes for waiting bicyclists.
- Safer ways to cross I-8 are needed. Fairmont Avenue is a joke and Texas Street is dicey.
- A bike connection along I-5 from UCSD to Downtown is needed. Gilman Drive to Morena Boulevard is recommended.
- Install escalators or elevators or flatten hills.
- The bike lane on Jamacha Road, which is a 50 mile per hour roadway, has been obstructed for five years.
- Do not construct bicycle facilities in Rose Canyon between I-5 and Genesee Avenue to preserve the canyon.
- A safe connection between Morena Boulevard and Santa Fe Street.
- Education program development should be prioritized above facilities.

- Speed enforcement is needed on Kearny Villa Road. People travel up to 70 miles per hour entering and existing freeway ramps. Three bicyclists have died in this location within five years.
- A bike lane is needed between SR-56 and SR-52. Miramar Road and Mira Mesa Boulevard are options.
- Harbor Drive is dangerous. Resurfacing or repair and street cleaning is needed.
- Resurfacing and street cleaning is needed on Kearny Villa Road.
- The SR-56 bike path connection from Del Mar to San Diego remains unfinished.
- A bicycle boulevard on Meade Avenue or Adams Avenue is a good idea. A Mid-City east-west connection that serves as an alternative to El Cajon Boulevard and University Avenue is needed.
- Roadways that run north-south around Balboa Park are nice two-lane roads that could be converted to one-lane roads with bike lanes.
- In Mid-City cyclists are forced to use Washington Street or University Avenue as a west-east corridor. Parallel and diagonal parking on these streets between North Park and Mission Hills make them hazardous to bicyclists.
- Clairemont/Kearny Mesa is a large employment center. These results are too focused on UTC.
- Create a bike/bus lane on 4th and 5th Avenues.

Station 6: Program Strategies

PUBLIC COMMENTS RECORDED AT STATION 6

- The Police Department should meet regularly with the San Diego County Bicycle Coalition.
- There should be a bike path around the circumference of Montgomery Field.
- "Yield to Bicyclists" signs are needed at interstate on and off ramps along Friars Road.
- Bicycle valet parking should be provided at all major events.
- Resurface bike lanes in addition to traffic lanes. Bike lanes on Kearny Villa Road, for example, were not resurfaced along with traffic lanes.
- Do not just conduct sting operations to enforce bicycle-related laws. Police officers should be trained and should regularly ticket bicyclists and motorists behaving dangerously.
- Improve the transition between the Rose Canyon Bike Path, Santa Fe Street and Morena Boulevard. Currently bicyclists must use Balboa Avenue which is too dangerous due to traffic speeds.
- Incorporate bike paths along the San Diego River Park project currently being planned.
- Law enforcement officers need to be better educated about laws related to bicyclists, specifically CVC 21202.
- Encourage the California Department of Motor Vehicles to include more bicycle-related issues in their handbooks. For example, handbooks should inform truck drivers approaching cyclists on their right to wait until there is sufficient room rather driving close to bicyclists.
- More Public Service Announcements (similar to "Give 'Em 5") concerning lane width and informing drivers of fines and other punitive issues are needed.
- Separate bike lanes are awesome for commuters if they are maintained. Currently, the Friars Road path is a vacuum for garbage; as a result, bicyclists must ride in the road to avoid the debris.
- "Bike to Work Day" should be a monthly event not an annual event.
- Incentives for employers by encouraging more showers and facilities for bicyclists
- The education provided to motorists and cyclists before and during their commute needs to be improved.
- Public Service Announcements are beneficial.
- Better bicycle user maps are needed.
- Signage improvements should be a priority.
- Bicycle safety programs should be provided in schools.

- Use radio, billboard, and television ads to educate people on simple issues such as to avoid door zones and to move left of right turning areas when traveling straight thru intersections.
- Print and distribute bike maps more often.
- Develop incentive programs to encourage employers to provide bike parking, shower facilities and lockers at work places.
- Work with San Diego State University to identify a good north-south route south of Interstate 8. College Avenue has no shoulder up this hill.
- There are no bike racks at the shopping center located at El Cajon Boulevard and College Avenue. This makes no sense.
- Education targeting children and police officers should be priority.
- Signage is needed to inform riders that according to California law, bicyclists should ride on the right side of the road with traffic.
- Decision makers who actually ride bicycles are needed in San Diego. A photo opportunity on “Bike to Work Day” does not cut it.
- Make it easier for women, children, and the elderly (anyone who doesn’t feel comfortable riding with cars) to get places by bicycle. It is legal to ride on the sidewalk in most places in San Diego. Inform people about when and where it is legal to ride on the sidewalk. Considering the sidewalk to be a part of the bicycle system expands the bicycle network without costing any money. Statistically, it is safer to ride on the sidewalk than in the street, isn’t it?

Appendix D: Preliminary Network Refinement Process

Preliminary Network Refinement Process

Chapter 5 of this Plan describes the process for identifying the proposed bicycle network. In the initial stage of this process, a preliminary bicycle network was developed by synthesizing existing facilities, planned facilities, and bicycling demand. This appendix describes the refinement process applied to the preliminary bicycle network. The preliminary bicycle network was refined to avoid proposing facility on very low traffic volume roadways, to avoid disconnected facilities, and to ensure basic sensibility. **Table D.1** summarizes the refinement approaches, which were only applied to segments of the demand network that did not overlap with the preliminary proposed bicycle network.

Table D.1: Refinements to the Preliminary Proposed Bicycle Network

Purpose	Refinement Approach
Remove facility recommendations from very low potential bicycle automobile conflict roadways	Intersect non-overlapping demand segments with the bicycle detractor model and remove segments with a detractor score of 4 or less. Detractor scores range from 0 to 32. Chapter 5 describes the bicycle detractor model employed in this planning process.
Maintain connectivity in the recommended network	The non-overlapping demand segments were inspected for dangling cul-de-sacs. Those routes which abruptly ended and provided no meaningful destination upon their termination were removed from the network.
	The non-overlapping demand segments were inspected for paths requiring excessive turn movements. Paths showing excessive turn movements were removed from the network unless they provided a meaningful connection to a particular origin or destination, or unless they comprised part of a meaningful alternative route.
Avoid excessive redundancy	Non-overlapping demand segments running parallel to other existing or proposed facilities were evaluated and considered for removal if they did not provide a useful alternative.
Downtown refinement	Additional refinements were applied to Downtown since nearly every Downtown roadway provided a shortest path connection during the demand analysis, as well as almost every Downtown roadway being part of the City's Circulation Element. All existing, proposed, and non-overlapping demand segments entering Downtown from outside of this community were continued through Downtown along the same roadway until the roadway terminated. All other non-overlapping demand segments within Downtown were removed from the proposed network.

Source: Alta Planning + Design, March 2010